HARPER'S WEEKLY

JUNE 20 1903

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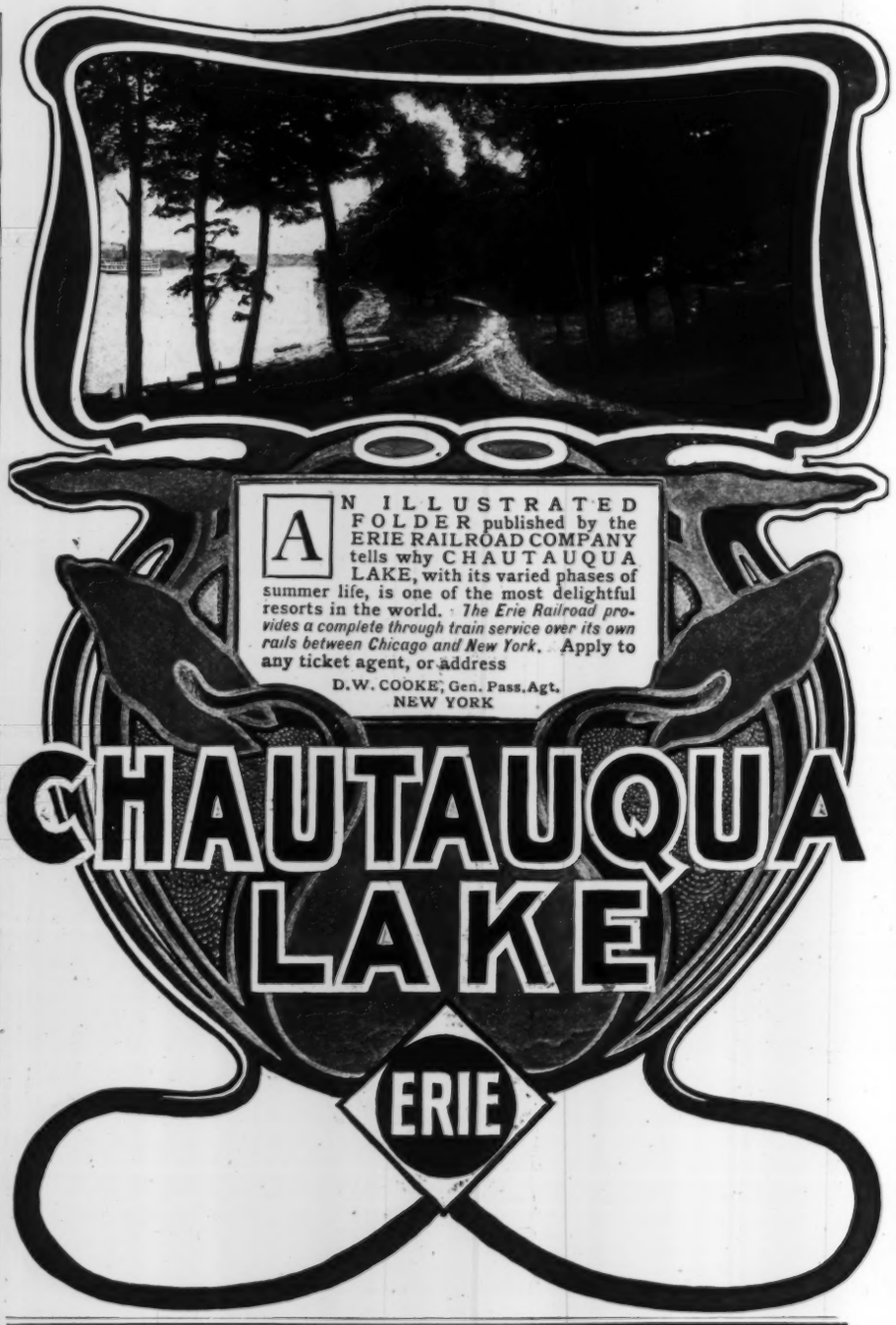

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HARPER'S WEEKLY

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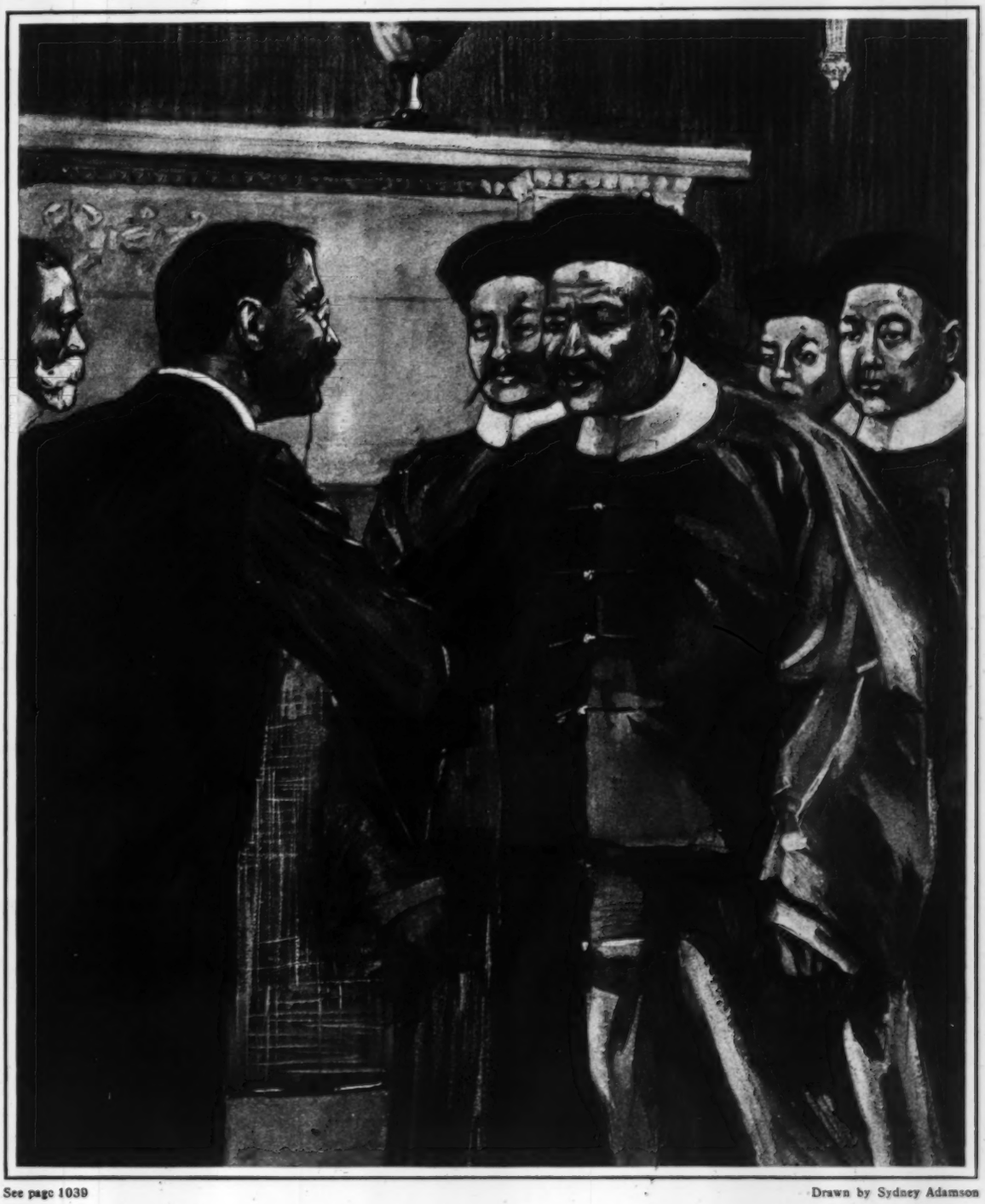


See page 1039

Drawn by Sydney Adamson

THE PRESENTATION OF THE NEW CHINESE MINISTER

One of the first official duties of President Roosevelt on his return to Washington from his Western trip was the formal reception of Sir Chentung Liang Cheng, K.C.M.G., the new Chinese Minister. The presentation to the President took place at the White House, and the ceremony was attended by Secretary Hay, the President's secretary, Mr. Loeb, and various members of the Chinese Legation

The Turkey Creek Pumping-Station, which is the only Source of Water Supply for Kansas City. The Station was of course ruined

The ruined Union Station, Kansas City, and the submerged Yards, showing Pullman Cars nearly under Water

Heimville, a Suburb of Kansas City, which has been practically blotted off the Map

THE HAVOC OF THE WESTERN FLOODS

Interior of the Union Station, Kansas City, with Three Feet of Water above the Floor

In the Santa Fé Freight Yards, where an Engine "died" early in the Flood

Wreck of the Elevated Railway where it crosses the Kansas River. The great force of the Flood is shown clearly in the Photograph

THE HAVOC OF THE WESTERN FLOODS

A New Invention for Our Next War

A NEW and important function has been added to the already deadly shell—visibility of its flight at night. By means of a torch attached to the base of the shell, it is possible to watch it throughout its entire course, and to see clearly the exact point at which it strikes. With the automatic guns now fast coming into general use and firing one-pounder shells at the rate of four shots a second, a practically continuous stream of fire is thrown, which can be directed like water from a hose, without using the sights of the gun and without knowing the range.

The illuminated shell was invented and developed by Mr. J. B. Semple, of Pittsburg, Pennsylvania, who owns all the patents, and it has been taken up for extensive tests by both the army and navy of the United States, as well as those of England, Germany, and France.

Mr. J. B. Semple
Inventor of the "Torch" Shell. The photograph was taken indoors, at night, by the light of the "torch" shell itself

Although much of practical value was learned from the naval battles of the Spanish war, there was no opportunity to prove the effectiveness of the modern torpedo-boat in the hands of daring and competent men. In repelling the attacks of these fleet little vessels, it is easy to imagine how difficult is the work of the gunner, when suddenly the search-light of the battle-ship "picks up" an incoming torpedo-boat, where but a moment before the sea was blank. There is no time to find the range or elevate the sights. The swiftly moving destroyer must be hit, and hit hard, before it reaches the 800-yard mark, where it will discharge its first 18-inch Whitehead.

The time allowed the gunner in which to strike some vital part is a little over one minute. Behind him are the lives of 600 men, his own life, a four-million-dollar battle-ship, and the cause for which he is fighting; in front is the desperate destroyer, certain of accomplishing its end unless stopped before it gets too close.

The knowledge of the result if he fails, the short time, the suddenness with which he is called into action, all tend to make his work extremely difficult. The combined attack of several destroyers at once would, under present conditions, prove almost impossible to resist. It is for these emergencies, when accuracy and extreme rapidity of fire are demanded, that the illuminated shell is expected to be most effective.

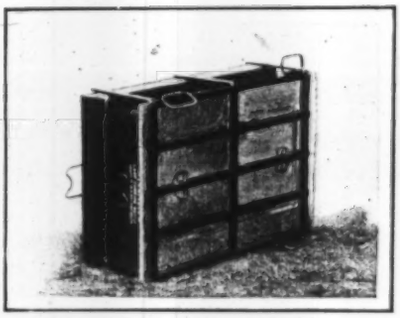
Exhaustive tests by the army have shown that by its aid field batteries can go into action at night without any previous knowledge of the range, and that it promotes the effectiveness of fire from coast artillery by showing the exact trajectory of the shell, the drift by the wind, and the amount of "lead" necessary to strike a swiftly moving vessel at long range. Without the data gained by watching the flight of the first shell the corrections for wind and speed of a moving target would be largely a matter of guess, and while the range can be correctly given and the sights accurately set, it still requires uniform velocity of the shell for accurate work.

It is now well known that a charge of smokeless powder if exposed to dampness does not give the required velocity, while, on the other hand, powder that has been stored in a dry place for a long time is apt to give velocities higher than the standard, and may cause a miss by over-shooting, although the correct range be given and the sights correctly set.

The object of a fort or a battle-ship is to carry and protect the guns; the sole object of the gun is to hit. Any device, therefore, which aids in increasing the number of hits in a given time cannot be too highly valued.

An order for several thousand of the illuminating attachments, called "Tracers," for sub-calibre target practice with the coast-defence guns has been placed with Mr. Semple, and it is expected that not only will the excellence of the night work be improved, but considerable interest added to target practice.

The "Torch" Shell in actual Warfare
This picture represents a torpedo-boat trying to blow up battle-ships in the night-time. She has been located by a search-light from one battle-ship, whose gunners have just caught the range with the "torch" shells



Complete Cooking Outfit, containing 35 Utensils, used by our Soldiers

Our American Soldier and His Food

By J. E. Jenks

The Cooking Apparatus in Use in the Field

WHEN the militiaman joins the regular soldier as an ally of the national defenders, as he may do under recent legislation, he will find provided for him a system of subsistence intricate enough in its variety and bounty to meet all the conditions of military service. He need no longer depend upon the uncertainties of the forage, as did so often his predecessor of the civil war, and he will be so much better fed than his fellow of the foreign armies that he can appreciate why the officers of the European commands of the allied forces in China on that memorable march to Peking were anxious to buy the American army ration of our subsistence officers and satisfy the cravings of soldierly hunger.

The militiaman, along with the regular, will go into the field when the call for action comes unhampered by any burden of food, save that bountiful repast of indigestibles with which he is certain to be laden when he leaves home. He may, if he choose, save from his camp meals or from the contributions of sympathetic citizens such food as he wishes to carry on his person, but on the ordinary march and in camp his haversack, the successor of the cumbersome knapsack, need contain no food, for his ration on the road will be transported by one of the numerous means of transportation. Difficulties of travel, however, such as were encountered by our soldiers in Cuba should be taken into account.

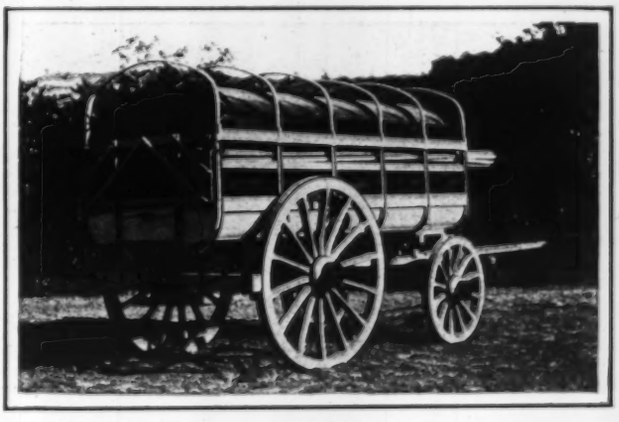
How Water is carried by the British Indian Troops

The soldier of the civil war usually had a hard time of it. He was frequently forced to carry his own food, and was lucky when he did not find himself on a ten-day march with only a four-day supply. In those days and even since the trooper found fat bacon and the succulent baked bean his staple articles when there was the opportunity of cooking them. If any article of food is a national characteristic of our army it is the bean, which is so popular that no military meal in the field or in camp is considered wholly complete without it. The soldier of to-day need not regard his gastronomic situation as perilous. He will not find his officers offering ten dollars for a pitiful cracker, as was sometimes the case in the South in the sixties, and he will not be so hard pressed for food as to be grateful for young alligator tails, as were our soldiers in Florida during the war with the Seminole Indians. Another food on that occasion was a species of cabbage which grew at the top of the palmetto-tree. This preserved the men from starvation, which is not likely to confront the soldier who goes into action nowadays, for he will find the railroad or the wagon-train penetrating into the fastnesses close upon his heels.

The service on the Western plains has been made comparatively comfortable, now that the troops do not have to depend upon the bull teams, capable of making no more than ten miles a day. Time was when men sallied forth with the prospect of going without, oftener than getting, their dinners, and they were happy with a piece of fat bacon, a hard biscuit, and a tin dish of blackest coffee. They had on those occasions flour fresh from the bag, and were glad of the resultant "flapjack" when they could find enough wood or other fuel on the arid prairie to make a fire. If their bacon gave out, as it sometimes did in the Southern swamps, they ate cooked horse, and it is on record that General Harney's trusty animal served that beneficent office.

The soldier of to-day goes forth with the assurance that he will get his three meals a day served for him, and that he will not be obliged to carry his food except upon the rare occasions of emergency, when he may be required to take not more than five days' rations. At such times he would find awaiting him an "emergency ration," consisting of sixteen ounces of hard bread, ten ounces of bacon, four ounces of pea-meal, two ounces of coffee, roasted and ground, with four grains of saccharin (or one-half ounce of tea with four grains of saccharin), a little salt and pepper, and a half-ounce of tobacco, or a trifle more than thirty-three ounces in all. In the ration package he would find the components separately wrapped, the bacon in tough paraffin paper, the hard bread in grease-proof coverings, and the pea-meal in cylindrical packages, and the other articles in small waterproof packets.

When the militiaman joins the regular in garrison he may find himself in the company mess, which is the most popular of the forms of army subsistence under peaceful conditions, or he may live in the consolidated mess, where all the troops of the biggest garrison eat in the common mess-hall, where the liquids are measured by gallons and the solids by bushels. The ration in garrison is bountiful and varied; in the company mess in time of peace the regular or his friend of the militia will sit down to a meal as hearty and wholesome as he would find at home. He breakfasts at 6.30 A.M., dines at noon, and has his supper at five or six o'clock. While on the march only two meals are prepared—an early breakfast and an early dinner two or three hours before sunset. In the garrison, as in the field, the ration has been scientifically devised. It takes into account the climatic situation with such variation in the bill of fare as would give him the proper kind of food at the tropical station as well as at a station in Alaska, for the ration is of so elastic a composition as to offer in the meat portion such equivalents as fresh beef, fresh mutton, pork, bacon, salted beef, dried codfish, fresh codfish, pickled mackerel, and canned salmon. He gets his coffee green or roasted, and his tea green or black, with sugar or molasses, or cane syrup, as conditions vary.



Transportable Oven used in the Field by the French Troops

While baked beans is a distinctive dish in our army, there is another home-made article whose use is the result of practical experiments over a kitchen range by General Weston, the present Commissary-General of the Army. General Weston applied himself to inventing a military hash and stew, and he went into the kitchen himself in the effort to obtain the combination. The beef stew is made of selected meats, potatoes, onions, and a sauce prepared from the juice of the meat. The hash is made of meat, potatoes, onions, and the usual condiments. This is the latest development in the army commissariat. During General Weston's research he was wont to call in prominent people, and

regale them with luncheons of the experimental food. It was found, too, that soldiers in various localities have special cravings—in the tropics it is for sweets and acids. In Cuba the subsistence officers sent barrels of vinegar to the firing lines, broke in the heads, and let the men dip in their cups and help themselves. It is on record that John Jacob Astor, a volunteer staff officer with wealth enough to buy the peach crop of a country, was grateful for a can of peaches; and a common spectacle was that of a man consuming the contents of a can of tomatoes. In the Philippines it has been possible to satisfy the demand for sweets, and no less than 120,000 pounds of candy are shipped yearly to our soldiers in the archipelago. Candy was also sent to the troops in China, and the 1800 pounds of the first shipment lasted but two days among the 1200 men. It came a few days before Christmas, and it made the foreign allies wonder at the prodigality of a government. They could understand why General Weston told a foreign military attaché the other day that the latter's country could not afford to feed its soldiers as we did ours, for it would take nearly $500,000 a day to give the largest of European armies the American soldier's ration.

That is why the national militiaman or the regular is better off with his beef hash, baked beans, and candy than the German, and French, for instance, with their fresh bread, or the Russian with his hot soup. The Germans adhere to the fresh-bread principle so tenaciously as to supply bread-baking wagons, which are supposed to keep up with the troops, and furnish them with that article while they are on the march, or even in the enemy's country; while the French have a portable oven which may be taken apart as a convenience in transportation. Our officers do not consider fresh bread indispensable, and it has been found that the hard bread is quite as nutritious, and is at hand when it is wanted by the hungry trooper.

Portable Soup-cart used by Russian Troops in the Field

The soldier in the field has furnished an alluring and lucrative market for the concocter of concentrated foods. There are innumerable concentrated soup and meat extracts, the latter now being in the form of capsules. The patent ration used by us in the Philippines is put up in oblong tin cans, opened with a key. The contents are supposed to include pea-meal, cracker-dust, bacon fat, and with seasoning. It is always interesting to know what the soldier gets in the way of "extras." In some armies he gets nothing, and in our own country tobacco may be considered the only luxury, aside from candy. He will never get his "grog." again. In England a gill of rum may be issued on the order of the doctor. The Germans have tobacco, and in an enemy's country the ration is increased by the issue of spirits. In the Hungarian army the ration includes brandy, tobacco, and sometimes cigars. Although tea is the national beverage in Russia it is not a part of the official ration, but is purchased by the soldiers themselves. In Holland the war ration includes, under special circumstances, a half-liter of gin. The Belgian soldier is one of the few soldiers in the world who gets butter in his ration. The Japanese soldier receives spiced vegetables and tea, and in hot weather during the war with China hard flour biscuit was substituted for the rice which is the principal portion of the Jap's ration. It is to this extent that the soldiers of the various armies are allowed "extras" as a means of contributing to their contentment in active service.

That army has the best fighters which gives its soldiers the best food. Military strategy is akin to military subsistence. Victory in arms may be said to depend upon the satisfactory employment of the digestive organs, and the alimentary canal is intimately related to heroism. Our army is the best in the world for its size, because its soldiers are the best fed.

Snap Shots of the Balkan Insurgents

THE bands of insurgent natives who are in continual revolt against the Turks in Macedonia make their homes in the mountain fastnesses of the country, where they are comparatively secure against attack. Their occasional collision with armed forces of the Turks result in conflicts which usually end disastrously for the insurrectionists.

The accompanying photographs were taken by our special correspondent in the Balkans under many difficulties and with great risk to his life, as the revolutionaries fiercely resent the intrusion of strangers into their mountain territory. The photograph to the left shows the insurgents taking their ease in their retreat in the hills; they are cooking a meal over a fire of twigs and boughs, and discussing their plan of campaign for a coming raid. The right-hand picture represents them after they have been warned of the approach of a division of Turkish troops who are pursuing them. They have got their camp in marching order, and are preparing to move to some retreat where they will be better protected from assault.

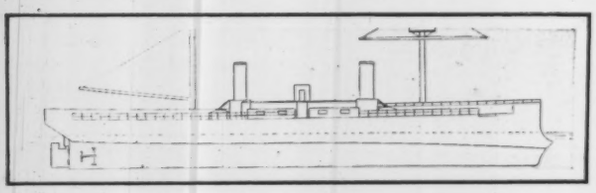
Balkan Insurgents preparing a Meal in their Mountain Retreat

Breaking Camp after being Warned of the Approach of Turkish Troops

Drawn by Sigismond Ivanowski

THE JEWISH MASSACRES IN RUSSIA

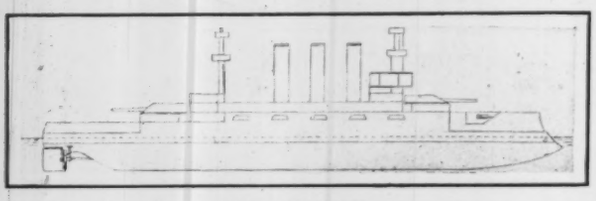
This drawing was made from a detailed description furnished by our correspondent in Bessarabia, the scene of the recent Jewish atrocities. A family of Jews living near Kishineff barricaded themselves in their home during the massacre, but the house was broken into by an infuriated mob, and they were overpowered after a courageous resistance. This is but one of many similar outrages perpetrated against the Russian Jews in this district



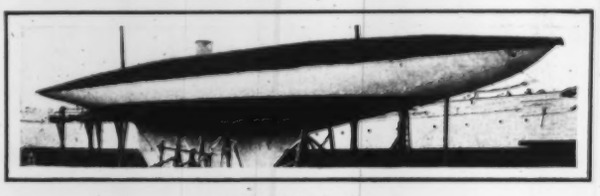
"Inflexible"

"Puritan"

Models of hulls of ironclad "Inflexible" and old cup-defender "Puritan," showing similarity of square-cut bows and sterns



New "Maine"



"Constitution"

Comparison of hulls of new "Maine" and cup-defender "Constitution," showing similar development toward undercut hulls at bow and stern of the new-style yachts and battle-ships

Have 90-footers Influenced Naval Vessels?

From the Point of View of the Yacht-Designer

By W. Starling Burgess

IN view of the large amount of energy, time, and money expended on the construction and perfection of the great 90-foot sailing-machines, and of the enthusiasm which yearly creates scores of new and original racing-boats along our coast, it is interesting to trace the applicability of experience gained in yacht-designing to the broader fields of the naval and merchant marines.

Thanks to the lightning strides in power achieved by the marine engine, there has been little difficulty in obtaining advance of speed for all types of steam-vessels from year to year, this advance being bought almost solely at the expense of increased horse-power and not by perfection of model. With the racing-yacht it is different. Comparatively definite limits of sail spread and consequent horse-power for a given length of hull are quickly reached, and greater speed becomes a problem not of greater driving power, but of the form most easily driven while affording the stability necessary to carry the possible sail spread. Thus the yacht has arrived at a subtlety and perfection of design for her own special ends not to be found in either man-of-war or merchant vessel.

The racing-yacht, war-ship, and merchantman share in common the need of a form of least resistance, but each with a different chief attribute; the yacht must possess the power of holding the lofty sail spread against the force of the wind; the war-ship, floating power for her massive armor, armament, and machinery; and the merchantman, floating power coupled with minimum draught of water for her cargo and machinery.

To meet the necessity of excessive stability the racing-boat has developed excesses in three directions—that of great overhangs at bow and stern, heavily weighted keels distinct from and far below the hull proper, and the unusual amount of beam for length and draught of hull.

The war-ship has developed a round fulness of model best calculated to give maximum floating power and a minimum of length and beam. The merchantman, handicapped by draught rather than length, has come to resemble an elongated box girder with ends brought to a more or less blunted point.

Of course such models as war and merchant vessels possess are capable of being driven at ever-increasing speed, provided the penalty is paid of far more rapidly increasing horse-power; but it is when the desirable limits of engine-power are reached that that attention to fineness and nicety of model which cannot be neglected in the sailing-boat will become necessary.

To this end the one distinct development of late years in merchant and war ship design, which, if not directly due to, closely follows the evolution of the racing-yacht, has been the cutting away of the submerged portion of the hull at bow and stern. The war-ship, merchantman, and yacht of thirty years ago possessed alike long straight keels, and met at the bow by nearly plumb stems and at the stern by deep vertical rudder-posts. In the yacht the stem has been revolved until it now meets the water at a very acute angle, the stern lowered, and the rudder-post given a large rake, the straight portion of the keel remaining in many cases but one-third of the water-line length. This change can be seen in the accompanying photographs of the *Puritan*, Cup-defender of 1885, and of the *Constitution*, one of the three trial-boats of this year. A change of like nature, though less marked, may be noticed by comparing the cutting away at bow and stern of the new *Maine*, as compared with the old English ironclad *Inflexible*, in accompanying diagrams.

However, it must not be forgotten that the whole problem of sailing craft differs so greatly from that of steam that direct influence of the one upon the other can seldom be found, but that the constant striving for perfection of the sailing model cannot fail to be of benefit to the entire field of naval architecture.

From the Point of View of the Naval-Constructor

By Naval-Constructor David W. Taylor, U.S.N.

The by-laws of the New York Yacht Club provide that:

"A correct model of every yacht entered for a regatta or other club race shall be deposited with the club and retained in its possession; and no person, other than a United States Naval-Constructor, shall be permitted to copy it unless he shall have obtained written authority from the owner of the yacht."

This antique provision is a relic of the days when the art of the yacht-designer and the war-ship designer were practically identical. In the days of sailing vessels of war, many of which were comparatively small craft, the problems to be encountered by their designers differed from those of the yacht-designer in degree, but not in kind. Hence the provision above cited in the by-laws of the New York Yacht Club allowing naval designers, whether members of the club or not, access to information of material value for their purposes.

The problems of the designers of battle-ships and of racing-yachts are to-day essentially and radically different, and full information concerning all the racing-yachts afloat would be of but little value to the designer of a battle-ship. It is true that in each case the saving of weight is of great importance. A yacht-designer wishes to reduce the weight of his structure in order to be able to increase his sail area and his ballast. The battle-ship designer desires also to save as much weight as possible, but in his case it may be devoted to machinery, coal, guns, or armor. In reducing his weights the designer of the modern racing-machine must leave sufficient strength to carry the enormous sail area and the ballast. The battle-ship designer, on the contrary, must provide strength for seaworthiness,—meaning ability to encounter any sort of weather at sea,—and he must have numerous and strong bulkheads to limit damage to as small a portion of his vessel as possible, so that the battle-ship could stand a number of holes below the water-line without danger of capsizing or going down, whereas the racing-yacht is built with but one compartment, and a hole through her anywhere would send her down like a stone. The battle-ship designer must, moreover, provide strength to carry enormous localized weights of armor, and resist the stresses due to firing the guns.

It might be supposed that when it comes to a question of shape for speed the battle-ship and yacht designers could learn from each other. Here again, however, the conditions are entirely different. The yacht-designer must provide a boat which, being driven by sail, is dependent for its driving power upon the fickle breezes. Moreover, he has a boat, say, 90 feet long upon the water-line, and displacing at the most a very few hundred tons. Our present first-class battle-ships are 450 feet long, and displace 16,000 tons and more. With a modern experimental model basin the battle-ship designer is upon sure ground when considering the question of speed. By making models of alternative designs of ships he can determine positively the power required for his boat, and if he provides this power he is certain to obtain the desired definite speed. For the yacht-designer, on the contrary, the model basin is of little value. He could ascertain from it the power necessary to drive his boat upon an even keel in smooth water, but as his boat is very seldom sailing under those conditions, this information is of comparatively little value to him. Of three yachts one may be inferior in a smooth sea and light breeze; the second, in a smooth sea and strong breeze; and the third, in a strong breeze and rough sea. To sum up, the yacht-designer and the battle-ship designer of to-day encounter but few similar problems. The conditions present affecting the solution of these few similar problems are so different in the two cases that the solutions of the yacht-designer are of little or no direct assistance to the battle-ship designer, and *vice versa*.

IDEALS OF AMERICAN WOMANHOOD

THE BUSINESS WOMAN

BY THEODORA WADSWORTH-BAKER

SUPERINTENDENT OF THE WOMAN'S DEPARTMENT OF THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK

Theodora Wadsworth-Baker

IDEALS may be briefly defined as our mental conceptions of perfect characters. Every woman's ideals are derived partly from her environment and partly from her own mind and heart. Given a woman with certain mental and emotional qualities, and she will develop different ideals under different environments. If she is brought up among the Four Hundred she will develop the ideals of a society woman. If she becomes a college graduate she will develop ideals in which learning will predominate. The woman who devotes herself to music, painting, or art in any form is likely to develop ideals which will consist largely of a devotion to art for art's sake.

In all such groups the girl who is just entering upon life finds that there are ideals which are conventional. She is expected to accept them. By so doing she arouses no criticism of herself or her ideals. She finds herself criticised when she refuses to conform to the conventional standards of the group which she has joined, and particularly if she adopts ideals which are different from the conventional ideals. Her fellow-women condemn her then as the Jewish prophets condemned the Jews who followed after strange gods. Few women have the moral courage to advocate a change of ideals for the group to which they belong. The majority are satisfied to follow well-worn paths. Yet the women who have such moral courage are doing the noblest work which it is possible for any women to do. Women are by nature idealists. They believe in an absolute standard of right. Their greatest contribution to civilization has been their constant insistence, in all ages, upon a high standard of living by all who sought their good-will and approval. Men are by nature politic—that is, they seek ends—practical ends—and more or less regardless of the means necessary to attain them. Women, however, are more loath to seek even the most worthy objects by means which they regard as questionable. By practical ends men usually mean profits. Naturally observing and critical, women see defects, and how things ought to be to secure the happiness of those about them. They idealize, and if their ideas were carried out in business, it would more often increase the expense account than the profits. The difference between men and women is partly a matter of conscience, and that accounts for the well-known fact that women are more faithful to the irksome details of business than men.

The effect of business upon women is partly bad and partly good. It is bad in that it tends to lower their ideals. The business woman is brought so constantly into contact with ideas utterly different from what she has been acquainted with, and in such a way that at first she is regarded by her employer, and must regard herself, as a beginner,—a tyro in business. At such a time she is tempted to adopt the ideals and methods which have satisfied men, and to aim no higher. It is a lamentable fact that many women in business do not resist this tendency.

The bad effects of business upon character have been so often dwelt upon by others that it is needless to more than refer to them here. It is generally believed that business tends to make a woman coarse and to rob her of those distinctively feminine characteristics which have constituted her chief charms in society. I believe there is such a tendency, but I think business tends to have the same effect upon men. This tendency can be resisted successfully by giving a little attention to the matter, and it will not produce any serious results when it is offset by a proper environment at home and in society.

The good effect of business upon women is well worth considering. Experience in business broadens a woman's mind and makes her views more practical. It tends to keep her from becoming visionary. It clips the wings of her imagination, so to speak, and compels her to walk upon the earth. She is not so likely to develop ideals which are fanciful and impossible of realization. It may rob her of some of her romance, but the experience which is substituted for it is far more valuable. She will be less of a dreamer, and more of a thinker. Her thinking, too, will be much more to the point, and the plans she formulates can be more easily put into operation.

A business woman's ideals should be distinctively feminine. She should resist the tendency of business to crush out of her the finer instincts of her nature and transform her into a mere cog in some great industrial wheel. Her tact should not be left at home, but used as much in the office as in the drawing-room to make things run smoothly. She should maintain as high a standard of personal conduct as she would in her own home or the ball-room. Her relations with men will be most circumspect. Their attentions will not be encouraged overmuch, or regarded as forerunners of propositions of marriage. While faithful to every detail of her work, the petty things should not be allowed to absorb her attention wholly, but she should try to take a broad view of the relation of her work to that of others around her—that is, she should try to see herself in a true perspective. Her dress will be modest, her speech and conduct unassuming. In short, she will not be "dashing," but at all times a perfect lady. By that I do not mean, of course, what some would understand by the term—merely a woman well versed in the rules of etiquette and social customs—but a woman whose mind and heart are refined and cultured, and who wishes to say and do at all times that which, under the circumstances, is most appropriate and most helpful.

If she will manifest in business the same refinement and nobility of character which she would have to possess to succeed in society, she will find that she will be appreciated just as fully. There will be plenty of demands upon her sympathy, and if she responds to these nobly, she will obtain a heart-culture which most of her fellow-women never secure. She will find plenty of things that need reforming, and all her womanly instincts for making better the conditions of life around her can be exercised to their fullest limit. If she has the physical, mental, and moral power to enter largely and enthusiastically into a business life, she will succeed in making a place for herself correspondingly large in the hearts of her fellows.

The Spirit of the Atlantic

The Spirit of the Pacific

Mr. Konti at Work

Old Sea God and Seal

Reclining Girl

MR. ISIDORE KONTI AND HIS DECORATIVE WORK FOR THE WORLD'S FAIR

Mr. Konti is executing the largest commission awarded to any single sculptor for decorative work at the St. Louis Exposition. The accompanying illustrations show some of the principal figures in his designs symbolizing the Atlantic and Pacific Oceans

NEVADA

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THE MODERN 49'ERS

EARLY discoveries in Nevada gave the people of the world an insight, to a very limited degree, into the great mineral wealth of the State. The decline in the price of silver, the principal product of her earlier mines, and the vast areas of desert served to lock for a long period the State's further wealth, and to keep it still an undiscovered country. The accidental stumbling upon Tonopah and the awakening realization of the true conditions have opened up a new mining era of which the camp at the base of Mt. Oddie is the starting post.

The true story of Tonopah is little known. The popular tale is of a single remarkable discovery, and this tale never gets away from the original location, commonly known as the Mizpah mine.

Directly opposed to this idea, the characteristic features of Tonopah as a camp is, the extent of the mineral zone; the fact that in its outlying sections, such as Ray and Gold Mountain, the former twelve miles and the latter five miles away, are discoveries which would of themselves make famous camps; and the clear indication that it will produce more individual mine successes than any camp the country has yet known.

The situation of Tonopah is near the summit of the San Antone range of mountains, at an elevation of about 6500 feet, sixty miles east and a little to the south of Sodaville, a station upon the Carson and Colorado Railroad, one of the lines of the Southern Pacific system. The location of the camp is in the depression between Mt. Oddie, a prominent peak on the north, the Butler Mountains, a series of peaks on the south, and Mt. Brougher on the west. These names have been given since the founding of the camp.

Tonopah was originally discovered by James L. Butler in May, 1900, his samples being taken from ledges which crop to the surface on the southwestern slope of Mt. Oddie. The trend of these ledges is practically east and west, with a dip toward the north.

Except in the case of these croppings in the original discovery, supposedly laid bare by erosion, the mineral ledges appear to be covered by a porphyry capping, known about Tonopah as the lode porphyry, with an overlying formation of blue porphyry, volcanic ash, and mud, in successive layers according to the depth of the ledges below the surface. The development of the camp indicates a complete gridiron of these ledges, their extent being as yet undetermined. The existence of the ledges, with their porphyry capping, has been determined from a point to the east of Mt. Oddie in a westerly direction for 6500 feet to and beyond Mt. Brougher, and for 5000 feet north and south. The porphyry capping has been encountered even outside these limits.

The discovery by Butler was the outcome of a prospecting tour which had its beginning at Belmont, Nevada. Here, Butler, who was a rancher living in Monitor Valley, outfitted in May, 1900, and started for the San Antone range. He had long been impressed with the appearance of these mountains, and prior to his departure he confided to his friend T. L. Oddie, a young lawyer and mining man of Belmont, his belief that they contained rich mineral deposits. At the end of a long day's march Butler, with his pack-train of six burros, camped at a spring called by the Indians "Tonopah," a Shoshone word meaning "water near the surface." While prospecting next day, four miles from his camp, Butler discovered a number of black croppings heavy with mineral, so much so, in fact, that he had little faith in their value. He, however, took samples and passed on to South Klondike, a small mining camp to the southward. Here Butler showed his samples to an assayer named Higgs, offering him an interest in the find in lieu of a fee for assaying. Butler's lack of ready money preventing him dealing otherwise. Higgs, after examining the samples, threw them out of his window as worthless. Later, on his way back to Belmont, Butler procured more samples and turned these over to Oddie and Wilson Brougher. Mr. Oddie sent a portion of the rock to an assayer at Austin, Nevada, who reported that it showed over 1600 ounces in silver and a heavy proportion of gold. Later the Klondike assayer, hearing of the strike, hunted up his discarded samples and found that they ran 100 ounces in gold and equally as rich in silver as those tested at Austin.

Hon. John Sparks
Governor of Nevada

Upon the receipt of this news Butler and his wife outfitted a burro train and started to locate the ground. Oddie and Brougher were taken in as partners, and an interest was also given the

Carson, Nevada's Capital City

two assayers. The Butlers spent several days in the section, setting up monuments with ore that afterward proved valuable enough to ship away. Butler first located the Desert Queen in his own name, then the Burro in the name of Oddie, after which Mrs. Butler located the Mizpah, and Butler the Valley View, Silver Top, and Buckboard. Upon their return to Belmont, Butler, Oddie, and Brougher outfitted a team and started out to work the property, the trio's total capital of ready money being but twenty-five dollars.

The three arrived in camp in October, 1900, and bunked on the ground, in the open air. There was no feed for the horses, so they were turned out, hobbled, to get what sustenance they could from the scanty bunch grass in the vicinity. Every second day it was necessary for one of the party to travel to the springs, four miles away, for water. The first shaft was sunk on the Mizpah claim by Brougher and Oddie, the hole being fifteen feet deep before a windlass could be secured. The principal articles of diet were beans and bacon. There was no wood for fuel, and Oddie, who generally performed the duties of cook, was obliged to mount from the shaft at very frequent intervals to feed the fire under the bean-pot with the quick-burning sage-brush.

Two loads of sorted ore were finally gotten out by the three men and taken to Belmont. A man was then hired to carry it 100 miles farther, to the railroad. From these two loads, weighing about two tons, $600 was realized. This was the first return from the mine, and with the proceeds two miners were hired and a better equipment of tools secured.

In November, the news reached the outside that a rich strike had been made at Tonopah, the name given by Butler to the camp. During the fall and winter a number of men were attracted to the camp, and the original owners began letting leases along the ledges. The first leases were for 200 feet in length and 25 feet on either side the ledge, but this was finally cut to 100 feet. All leases paid to the owners a royalty of twenty-five per cent. Early in 1901 the first rush into the camp began. There was a big demand for leases, and the leasers were of all professions. The work of looking after these leases devolved upon Oddie, who was recognized as the business man of the combination. A total of 120 leases was made by Butler, all of them without a scrap of writing, although there were as high as thirty partners to a single lease. The trials of Oddie in handling the disputes, differences, and complications arising from this leasing system, to say nothing of a necessary watchfulness to protect royalties, has stamped him as a first-class diplomat and financier. In addition, Oddie carried a large number of the leasers along at a time when it was hard sledding with a majority of them. Practically none of them had money, but loans were made by Oddie, purely upon his faith in their honesty and in the resources of the ground they were working. It was a matter of pride with the original locaters, and particularly with Oddie, that no man should be obliged to leave the camp without a fair show to make a stake, and a matter of a few hundred dollars was not allowed to stand in the way.

In June, 1901, the property originally located was sold to Philadelphia capitalists for $336,000, a part of the purchase price being taken in stock in the new company, known as the Tonopah Mining Company of Nevada. It was insisted by Butler that the leases should be allowed to continue until January 1, 1902, but the twenty-five per cent. royalty went to the new company from the time of the sale in June. In the fall of 1901, the leasers began to make rich strikes, and men were crowded into the holes as thickly as they could work. In all, the leasers took between $5,000,000 and $6,000,000 out of the mine. They actually paid the new company between the time of the sale and the time it took possession more than it paid for the property.

With the expiration of the leases systematic work toward the development of the mine began. Oddie was appointed general manager, and Fred J. Siebert, who came into the camp in November, 1901, superintendent and chief engineer. Siebert's work on the mine will compare with any piece of mining engineering in the country, if not in the world. His skilful planning has been highly complimented by John Hays Hammond, who, upon becoming consulting engineer for the company, advised the retention of Mr. Siebert's services. Under Siebert permanent and systematic development began in January, 1902. The construction of a stone-engine and shaft-house was begun, and a big system laid out which will operate the mine for years to come. In thirteen months three shafts were sunk, the main, or Siebert shaft, to a depth of 750 feet, and the Valley View and Desert Queen to about 700 feet. These shafts are all connected by workings at present somewhat over a mile in extent, the principal tunnels being on the 300-foot level. The formation obviates the necessity of timbering, and no water has been encountered. The ventilation is perfect, and the tunnels, started from three different points and run in sinuous courses, come together without a flaw or a break. Wires are being run for a complete electric-lighting outfit. In running the tunnels vast bodies of ore have been opened up, averaging over $100 a ton in value, and in sinking to lower levels the veins have, if anything, grown richer. It is simply beyond the range of possibility to make anything like an adequate estimate of the wealth of the mine. It can only be said that the Mizpah or original Tonopah group has, in the two years and a half of its existence, produced, in ore shipped and now on the dumps, over $7,000,000, being some $2,000,000 more than the entire Cripple Creek district produced in five years, or the Comstock produced in seven years. The mine is shipping to-

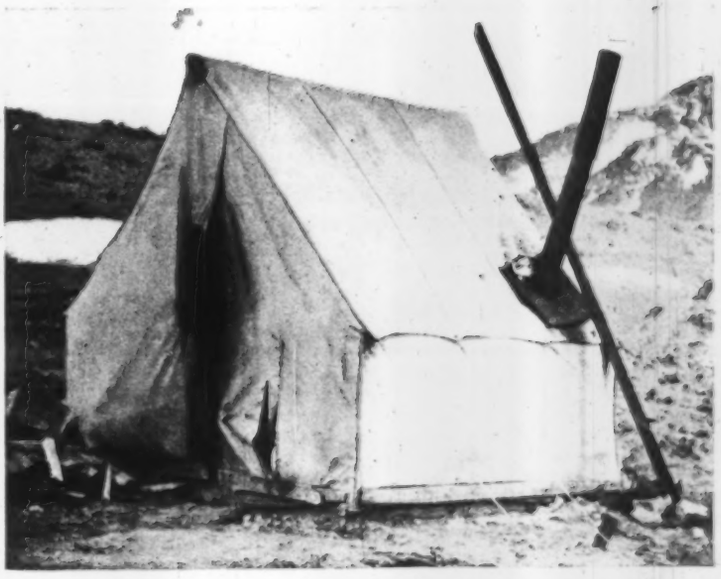
Tonopah, on January 1, 1901

day more than $100,000 a month in ore that runs better than $100 to the ton, and this ore is obtained solely from the work of running tunnels and sinking shafts, for, since January 1, 1902, the entire work has been merely to develop the extent and character of the property. No stoping has been done, and no attempt has been made to take out ore for the sake of the ore itself. Beyond the original $25 put up by Butler, Oddie, and Brougher, not a dollar has been put into the mine that has not first been taken out of it. There is every reason to believe that a number of other properties in the vicinity will prove of equal or greater wealth when as fully developed. In fact, one or two of these properties have to-day a better showing than did the Mizpah at an equal stage of development.

The story of the development of the camp, and the constant extension of the proven ground, is one of marked import. During the operations under the leases interest wholly centred in the main group of claims, and little or no attempt was made to prove the extension of the ledges. It was, in fact, accepted as conclusive that the entire mineral deposit was included in the immediate vicinity of the original location.

Up to the conclusion of the leases there had not been a single strike, except in the property immediately adjacent to the first location.

Early in 1902 Uri B. Curtis secured possession of several claims situated across the gulch in which the town had been located, and known as the Fraction property. Curtis believed the ledges extended across the gulch and began sinking a shaft in the town itself. He had previously been engaged in sinking oil wells in California, and for a long time after he began work "Curtis's well" and "Curtis's folly" were bywords in the camp. Curtis, however, kept pluckily at work, and on April 22, 1902, at a depth of 320 feet, struck a fine body of mineral in a clearly-defined fissure.



Tonopah's first Habitation

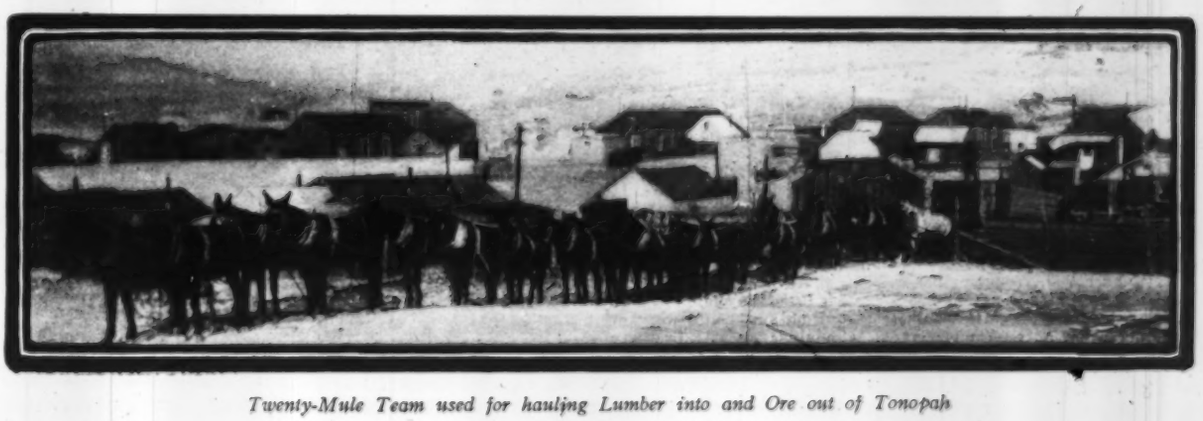
This discovery marked a new epoch in the camp's history. It showed the existence of ledges outside the original location, and started the development of the district in all directions. There began to be a better understanding of the ledge formation, with its capping, and a realization of the fact that in most instances it would be necessary to sink to a considerable depth before encountering ore. Bearing out this idea, strikes were successively made to the east of Mt. Oddie at a depth of 400 feet on August 26, 1902, in Montana-Tonopah, to the north of the Mizpah group, at 352 feet, on December 10, 1902, and to the south of the Fraction property at 158 feet, about December 25, 1902. Since then strikes extending the area of proven ground have been of constant occurrence, one having been recorded in the Molly shaft, some 2500 feet to the southeast of the Mizpah, as late as March 16 of the present year, this being closely followed by the bonanza strike in the Belmont property.

The successful progress of the past year certainly stamps Tonopah as one of the great mineral belts of the world.

The development nearest to and most closely allied with the original company is that taking place in the Belmont group. This includes the Belmont, located in 1901, the Silver State, Occidental, and Favorite, located by Oddie, covering the peak and practically the entire eastern half of Mt. Oddie. The group covers an area directly in line with the extension of the Mizpah, Burro, and Silver Top ledges, this extension being proven, first in the Desert Queen shaft, again by a strike 3000 feet eastward from the Desert Queen, and now by the great strike in the Belmont. The Belmont uses as its main shaft the shaft of the Desert Queen by contract with the Tonopah Company, and also has a shaft on the Belmont claim, over 300 feet in depth, now being timbered, and will be fully equipped with complete hoisting apparatus. The middle of the last month, while cross-cutting on the 614-foot level, an immense body of ore was struck running from $300 to $500 per ton. This strike is one of vast importance, as it proves the existence of great veins under Mt. Oddie, of which the Belmont strike is simply a forerunner. To the east of the great Belmont lies the Mizpah Extension Company's property, in which a big ledge of $30 ore was encountered at a depth of about 400 feet, and at 600 feet in the same shaft a rich strike was made of ore running very high in gold. Adjoining the Mizpah Extension Company lies the great property of the Tonopah-Albemarle Gold Mining Company, upon the trend of the big ledges to the east and north, and on which extensive operations have recently begun, and development is proceeding rapidly. It is confidently believed, from present indications and the location of the property, that it will prove exceedingly rich in ore of as high a grade as produced by its great rivals on the west and south.

The northern and western slopes of Mt. Oddie are occupied by the five claims and tunnel sites of the North Star group. These are the Ivanpah, Elaine, Pyramid, Fraction, Cross Cut, and Cross Cut Extension, all located in 1901. The seventy acres included in the North Star are bounded on the south by the Belmont and Mizpah groups, and on the west by the Montana-Tonopah. A double-compartment shaft is being sunk on the Ivanpah claim which adjoins the Mizpah, and this shaft is now at a depth of 650 feet. It has recently added to its equipment by the purchase of a 60-horse-power hoist. The property is owned by men who have made their money in the camp, and is an example of the confidence Tonopah men have in the resources of the district. The dump of the shaft is far up on the mountain side above any other workings, and the company expects to go at least 700 feet deep before striking the lode porphyry. It has spent some $40,000 in its workings thus far. Its shaft, however, is directly on the strike of several ledges opened up in Montana-Tonopah. These ledges have been proven to go under Mt. Oddie, having been struck on the other side. It is a general belief in the camp that a very rich body of ore lies under this peak, and if this belief is proven to be well founded, the North Star property will be one of the richest in the entire section. The tunnel site is on the north side of the property, and a tunnel has been opened 600 feet toward a connection with the shaft.

Reference to the Montana-Tonopah calls attention to this group in which the development has been carried farther than any other in the district, excepting only the Mizpah. Montana-Tonopah joins the Mizpah directly on the north, and includes the Lucky Jim, Jack Rabbit, and White Elephant as its principal claims. This group has made a showing even greater than the Mizpah at the same stage of development. A shaft on the Lucky Jim, now at a depth of 650 feet, with several cross-cuts, has cut five distinct ledges varying from four to twelve feet in width. The ledges all assay in high figures, a sampling of the second ledge across its entire width giving an average of $350 per ton. With a double-compartment shaft and complete hoisting-plant the Montana-Tonopah is carrying on a thorough development, following a plan



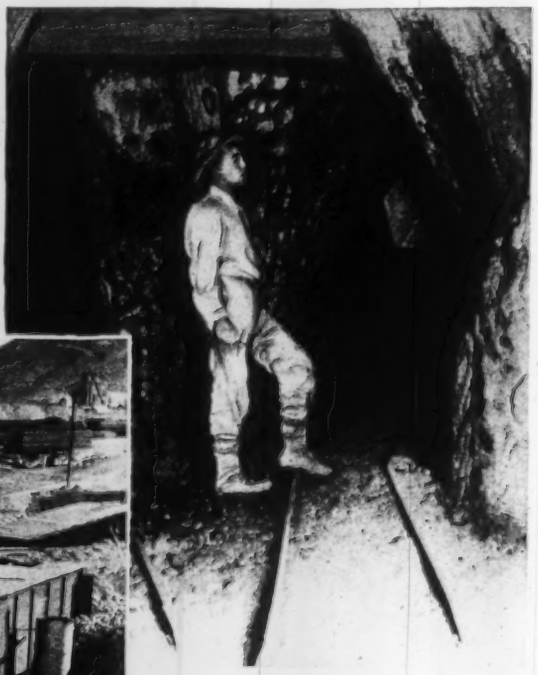
Twenty-Mule Team used for hauling Lumber into and Ore out of Tonopah

Bird's-eye View of the new Mining District

similar to that used in developing the Desert Queen. In the Desert Queen the shaft was sunk 420 feet before encountering ore, cutting through three distinct formations. In the Rescue the first formation struck was identical with the second formation in the Desert Queen, the blue porphyry of the latter having been eliminated in the Rescue through erosion. The Rescue is some 100 feet lower than the Desert Queen. Following the gray porphyry, which is the second formation in the Desert Queen, the Rescue shaft runs into a like formation as has been encountered in the Desert Queen and other shafts immediately above and capping the mineral-bearing quartz. Stringers of quartz and black manganese have already begun to show in the bottom of the shaft.

The Midway property, lying at an angle formed by the Tonopah and Montana-Tonopah properties, includes the Midway, Bullwhacker, and Campfire claims, originally located by Oddie and Brougher, and sold to the Midway Mining Company. The Midway has a double-compartment shaft sunk to a depth of 275 feet, equipped with a 25-horse-power steam-hoist. Development was started October 15, 1902, and blue porphyry struck at a depth of 100 feet. Stringers of quartz have been encountered which assay well. The property is directly on the line of the strikes in Montana-Tonopah.

East of the Belmont the development of the district has been undertaken in the Halifax group of which Senator Kearns of Utah,

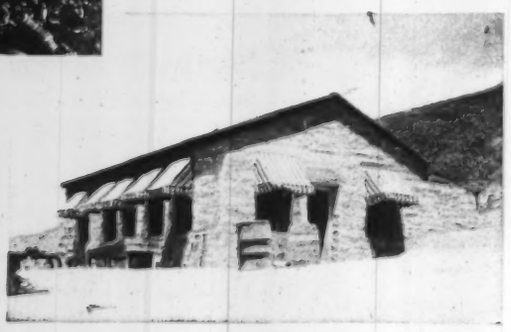


A Tunnel on the Mizpah Ledge

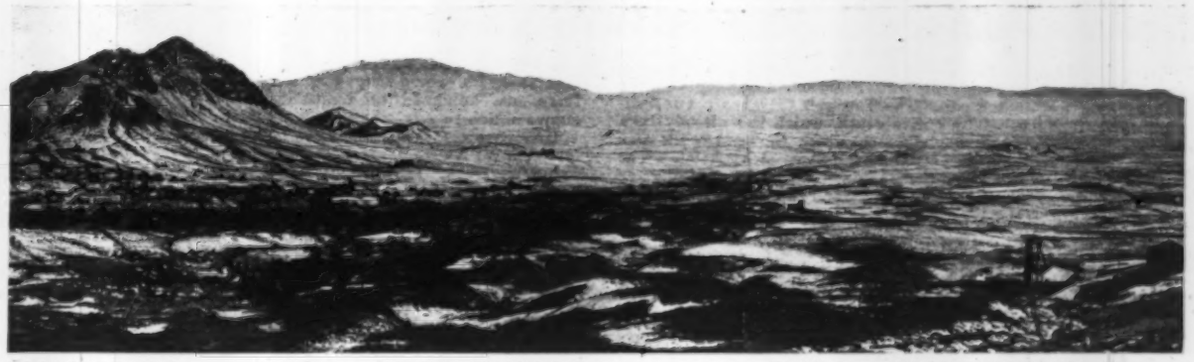
Ore Sorting on the Mizpah Dump

and David Keith, of Salt Lake, are principal owners. The claims are Halifax Nos. 1, 2, 3, 4, located November 20, 1901, by G. E. Bradley. The property is on a line with the Burro and Valley View ledges, and a strike to the north has proven the extension of these ledges beyond Mt. Oddie. The Halifax has an unusually fine equipment, including a steam-hoist with a 50-horse-power engine and a 70-horse-power boiler. The shaft, a two-compartment affair, is now at a depth of 375 feet, and it is the plan to go to 500 feet before cross-cutting, unless the formation should warrant such operation at an earlier stage. Croppings on this property assayed from $5 to $9 60 in gold, and $5 20 at the shaft.

As an illustration of the fact that the extent of the mineral zone of the camp has been undetermined as yet in any direction, the latest recorded strike is in the Molly group to the eastward of any heretofore encountered of the ledges. The Molly group includes twelve claims lying 2500 feet to the southeast of Mt. Oddie, located early in the summer of 1902 by Oddie, Siebert and Donald F. McCarthy, and later sold to Philadelphia parties. The theory of the location was that the ledges lying south of the Desert Queen, Belmont, and Halifax extended eastward through the gap between Mt. Oddie and the Butler Mountains. The property includes an elevation known as the Molly Buttes, conspicuous from the fact that



Headquarters at The Mizpah



The Fraction Siebert Shaft Mizpah Ledge The Midway The Golden Anchor The Montana Tonopah

in the State of Nevada

they are composed exclusively of a silicious material forming the cap rock of the underlying porphyry. Here a double-compartment shaft was sunk, thoroughly timbered and built throughout for permanent use. A temporary hoisting-whim was installed, with the intention of substituting a modern steam-hoist as soon as the shaft had reached a reasonable depth. At something over 125 feet, earlier than was expected, both the lode porphyry and the mineral-bearing quartz were struck. The company will now cross-cut to determine the extent of the ledge and the existence of parallel ledges.

An interesting feature of the camp is a dyke running

The Wedekind Mine

in a westerly direction from the Molly group, known as Crown Point Reef. At the eastern end of this dyke a strike has been made of a horizontal stratum of quartz and porphyry from sixteen inches to eighteen inches thick, carrying high values in spots, lending weight to the theory that the dyke is the source of an extensive and deep-seated ore body. Three groups of claims were originally located on this dyke by Donald F. McCarthy, including the Molly group, and he has retained the central, or what he has termed the Crown Point group, of seven claims, intending during the early summer to

Crown Point Reef, and its First Workings

carry out extensive development work in line with the theory concerning the dyke.

In line with the Montana-Tonopah strikes to the westward strong showing has been made in the Golden Anchor property, consisting of Golden Anchor, Triplet, and Black Mascot claims. The Golden Anchor was located in October, 1900, in the very earliest days of the camp, and adjoins to the northwest the Sand Grass and Red Plume claims of the Tonopah Mining Company. The surface showings consist of three well-defined leads, traced through the property. Numerous open cuts and pits have been made for prospecting purposes. The working shaft is well-timbered throughout, and has been sunk to a depth of 200 feet. It has cut two well-defined leads, nine feet in width and carrying values in both gold and silver. Cross-cuts will be run later to intersect these veins at depth. The bottom of the shaft is now in mineral-bearing porphyry identical with that encountered in the Montana-Tonopah. A 60-horse-power steam-hoist is now being installed.

Just north of the Midway property, 1400 feet north of west from the Tonopah Company's claims and in direct line with the Montana-Tonopah ledges excellent values in both gold and silver have been found on the Tonopah Silver Top property. This claim has a shaft down something over 100 feet, and is pushing its work as rapidly as possible with a whim-hoist. A steam-hoist is soon to be installed. The showing in the shaft is exceedingly flattering, and indicates strongly the striking of the rich Montana-Tonopah ledges.

Farther to the north development is actively going on upon the group known as the Little Tonopah, consisting of twenty-three

Pumping Station which supplies Tonopah with Water

claims and covering 460 acres of ground, beginning within 600 feet of the most westerly claim of the Tonopah Company. A finely timbered double-compartment shaft is being sunk, and has reached a depth of 200 feet, passing through solid porphyry formation highly mineralized. The equipment includes a 12-horse-power engine and hoist.

Extending to the south and westerly from the Fraction property development is going on in line with the theory, already practically demonstrated, that the Gold Hill and adjoining ledges have been diverted to the south by the interposition of Mt. Brougher and pass through the gap between it and the Butler Mountains, both being of a deep-seated basaltic formation. Joining the Frac-

tion and Gold Hill properties are four claims located by A. J. Crocker, John Salsberry, Cal Brougher, and Leutjens, known as the Tonopah City group. The claims are the Flying Dutchman, Leutjens, Little Tono, and Big Jim Fraction, and they cover a width of 1200 feet in the gap. The Tonopah City has a two-compartment shaft, timbered its entire depth, which has already been sunk 425 feet. A gasoline-hoist, with which the first work was done, is being replaced by a 59-horse-power steam-hoist. The shaft is being sunk on the Flying Dutchman claim at a point where, if they maintain the direction now indicated, the ledges of the Wandering Boy and Gold Hill claims will converge.

On the same line the property of the New York-Tonopah group consists of four full claims abreast, located by Frank J. Davis and John Dopp, and named the Washington, Wyoming, Cape Nome, and 'Frisco. The locations were made December 6, 1901, and development work begun in May, 1902. The shaft is now down to a depth of 575 feet, and at 340 feet went into the lode porphyry, identical with that encountered in the Fraction. The shaft is now in quartz, the ledge being 10 feet wide, but as yet low grade. If the ledges are found, as indicated, the company will have some 2500 running feet in which to work. The shaft is 4×6½ feet in the clear, with a 4×4 hoist and a 4×2½ manway. The equipment includes a 22-horse-power gasoline hoisting-engine.

Between the New York-Tonopah's property and Mt. Brougher lies a group known as the Tonopah Fraction Extension. On this group a 4×4 double-compartment shaft is now at a depth of 115 feet. The nearest shaft of the Fraction Company is within 600 feet of the shaft of the Fraction Extension, and the ledges are directly in line.

Beyond Mt. Brougher, to the north and west, the existence of the ledges has been demonstrated by the Ohio-Tonopah Company, which sunk into the lode porphyry at a depth of 325 feet, and has since passed into the mineral-bearing quartz. The claims of Ohio-Tonopah comprise the California, upon which the shaft is being sunk, the Colorado, Oregon, Arizona, and Utah. The property is in line with the Burro and Mizpah ledges of the Tonopah Company, as they have been indicated thus far. A two-compartment shaft and steam-hoist are in operation.

Two miles to the northwest of the Mizpah lode a group of five claims located by Frank Naughton and John W. Störer are known as the Commodore group. The claims are the Hiu, Troy, and Commodore, and in the 75 feet to which the shaft has already been sunk strong mineralization has been discovered. The shaft is at present being operated by a windlass, which will soon be substituted by a power hoist. Assays taken at the head of the shaft showed $6 in gold and $10 in silver. Later assays showed similar values in gold. These claims have a strong lead pitching toward this ground from the south, and a 10-foot lead, running $10 strong, from the west. It is planned to sink 200 feet, and then cross-cut south. Porphyry thus far encountered has a marked oxydized stain.

This rapid system of development has drawn to Tonopah a population which now numbers over four thousand souls. Among these every profession and craft is represented, and people from every corner of the earth elbow one another on the busy streets. Yet in all this strange mingling of individuals there is a total absence of those characteristics which marked the mining-camp of a generation since. Instead of being "wild and woolly," Tonopah is conservative and orderly, and that too without any decided form of municipal government. The crack of a revolver which so often resounded in the early days of Western mining is an unknown quantity in this community, on the heights of the San Antone range. Violence is an absolute stranger, and in her two years of existence the camp has had but one shooting affray, the victim of that affair being a typical "bad man" who drifted in over the desert, and met his quietus while attempting to develop the gun-fighting industry which had marked the years agone in Western camps.

Head of Main Shaft, Tonopah Union Group

Up to the present time every pound of ore which has been reduced to bullion has been hauled over the sixty miles of desert and shipped to either Salt Lake or San Francisco. Only ore of highest grade could pay the heavy expense, and consequently there are hundreds of thousands of tons now lying on the dumps which in any other camp would be worth millions.

This condition will within a short time be done away with, for plans have been perfected for the construction of reduction works which will handle profitably every ton of ore now in sight.

The question of water was a serious one, which has been completely settled by the discovery of an abundant supply in hidden springs close by the original wells from which Tonopah derived its name.

Early in 1902 the Crystal Water Company was formed for the development of this supply, and on October 28 its pipes carried the first supply to Tonopah's centre. The pumping-station is located close to the original wells, with a capacity of 250,000 gallons per day.

The water is raised to reservoirs ninety feet above the level of the wells, and thence gravitated into camp. Long before the coming summer makes its greatest demands the storage capacity will equal 100,000 gallons, from which it is easy to figure that Tonopah has water and to spare for even a doubling of her present population. This increase of the water-supply has also solved the question of power, which is an important factor in the camp's development, for, during those times when steam was an impossible quantity, the operation of every piece of machinery had to be carried on by power developed from gasoline engines, the fuel for which became almost worth its weight in the gold it was bringing out of the ground when transportation charges are figured up.

Hoisting Works at Gold Hill

No travel over the deserts of Nevada is pleasant, but the journey to Tonopah has been rendered as comfortable as conditions will permit by the establishing of two well-equipped stage lines between the camp and railway at Sodaville. Each line makes daily runs, and covers the distance of sixty miles in less than eight hours. It will be but a question of a few months when this long stage journey will be eliminated, for a railway line is now under construction over this route, and is estimated will be in operation before next autumn. This will bring Tonopah into direct communication with the outside world by means of the lines of the Southern Pacific system and the Virginia and Truckee Railway. Still another railway is promised running from the south, and is already under survey.

Tonopah can be summed up as not only a mineral phenomenon, but also a model mining-camp.

Hardly a day passes without some new record of the wonderful richness of her mines, and the bonanza days of the Comstock bid fair to be repeated in this Nevada's new Eldorado. Unlike the average mining-camp, the operators about Tonopah do not seek to hide their successes, there being an air of frankness about the whole camp which is refreshing. Jim Butler's famous edict made to the buyers of the original claims, "these leases have got to stick even if there is nary the scratch of a pen to bind them," seems to have set an example for the transaction of all classes of business which but few of Tonopah's people have failed to absorb.

Taking all conditions under consideration Nevada can well be termed a State with a future. The development of her mining industry is certain to give to her millions of wealth, and it is encouraging to notice that her most successful mining men of to-day are using their fortunes to develop some of her boundless resources in the line of agriculture, horticulture, and stock-raising.

Spurred on by the assistance to be rendered by the government under the irrigation law established by the efforts of her junior Senator, Nevada's valleys will bring capital for their development, and her rich acres will furnish homes to thousands whose modesty of capital prevents them becoming land-owners in those centres where values have already risen to exorbitant figures.

GOLD MOUNTAIN TONOPAH'S SOUTH-ERN OUTPOST

Tom Colehan
A typical prospector and discoverer of the Colehan

IT is one of the best indications of the vast amount of undiscovered mineral wealth in Nevada that whenever a discovery is made further investigation almost invariably brings to light other deposits in the vicinity, of varying richness. As has already been said, there are outlying districts in the Tonopah section, any one of which, had it been discovered before the wonderful Mizpah lode, would have taken an equal place with respect to the interest excited. Particular reference in this connection is made to the Gold Mountain district, nearly five miles south of Tonopah, which has displayed a richness of mineral resource second only to the Butler Camp.

Gold Mountain has its own discoverer and its own unique character. Tom Colehan is the father of the camp, and there is no more interesting personality in the entire district.

Colehan is a typical prospector who, prior to his great find, never possessed a dollar of capital, and whose typical gameness is illustrated by his refusal for his claims of more thousands than he had ever owned dollars, and that, too, when he was in doubt as to whence the next meal was coming. His history is buried under years of prospecting on the desert, though he asserts himself to be an Irish Quaker, saying, in explanation: "We are a peculiar people, known by our strange garb, and habits of silent prayer. You can all see that my dress is peculiar, and no one ever heard me pray."

This rough, uncouth miner, whose wit never fails him, made his discovery through the medium of a pair of ill-fitting boots. He had made a hard day's tramp, suffering from the pangs of new footwear. An empty canteen started him back to camp, and *en route* he stopped to rest. While "cussing" both the boots and his luck he seated himself upon a cropping of rock. During his rest he knocked some pieces from the ledge with his hammer, carrying them to camp. Those bits of rock assayed $168 in gold and $133 in silver, and came from the cropping of what is to-day known as the great Colehan ledge. Prior to this discovery at Gold Mountain by Colehan, C. Runge located a ledge farther up the mountain.

The principal properties of the section include the claims of the Tonopah Gold Mountain group, at the eastern end of the ridge, the Tonopah Union claims adjoining to the west, the Colehan group, and that of the Gold Mountain Consolidated next in order, with the Lucky Tom claims at the western end.

The Tonopah Gold Mountain claims were located in September, 1901, by C. Runge, and are eight in number. A strong ledge crops along the entire eight claims, and in places the vein shows from 40 to 100 feet wide. The pay-streak runs from $100 to $500 a ton, and shows from eighteen inches to two feet wide. A north and south ledge also outcrops on the property, the north ledge running from $10 to $100 and the south ledge from $5 to $5000. Three shipments were made from the croppings, the first netting $193 to the ton, the second $210 to the ton, and the third $159 to the ton. Generally the ledges have the same trend as those of the Tonopah property, but gold values predominate, the proportion being about two-thirds gold to one-third silver.

A tunnel is now being run to strike the vein at depth. This tunnel is 325 feet into the mountain, and it is calculated that it will strike the pay-shoots at 700 feet. At 700 feet air-compressors will be put in and a shaft sunk at that point. No further attempt will be made to ship ore until the pay-shoots are reached.

The Tonopah Union claims are five in number, and were located May 5, 1902, by Colehan. The shaft on the property is now at a depth of 195 feet, and is at present being operated by a whim. A second shaft has been sunk to a depth of 70 feet, and the two shafts will later be connected.

In sinking the main shaft a peculiar condition was discovered. The shaft was run along the incline of the ledge for a distance of 80 feet. The ledge was then cross-cut, showing 12 feet wide at this point, and assaying $63 a ton. From this point the shaft was sunk vertically, and at 132 feet dropped on another ledge, running east and west, as did the first, but there was also discovered at this point a north and south ledge, passing across the corner of the shaft, next the foot-wall of the east and west ledge. Assays of the north and south ledge showed $367 02. More recent assays from east and west ledge taken January 6, 1903, show $43 21, $71 49, and $257 66. Many specimens from this ledge show free gold. It is the intention to carry the shaft to 200 feet, and then cross-cut at this level, at the same time drifting on the ledges above. The mine is equipped with good buildings, and is now installing a power hoist.

The Gold Mountain Consolidated property has upon it an outcropping ledge, fifteen feet wide, from which assays of $30 a ton have been taken. Contracts have been let for a double-compartment shaft, with hoisting equipment, and sinking has already been begun. The company is sinking on ore. It is planned to go 400 feet and then cross-cut, although the character of the ore encountered will definitely determine the depth at which the cross-cut will be started.

On the Colehan property there are two main fissures, with surface croppings on each. The surface assays run from $5 to $400. Two shafts are being sunk on the property, one on the Eliza Jane claim and the other on the Pola. The other claims are the Star of the East, Star of the East No. 2, and the Desert King. The ledges run through the entire length of the claims.

Dump at Mouth of Tunnel
Tonopah Gold Mountain Group

UNITED TONOPAH

MIDWAY between Tonopah proper and Gold Mountain lies a group of claims which have come into sudden prominence. These claims make up the United Tonopah group, and occupy a little ridge of buttes extending almost north and south. Surface indications led to the development of the property which has been carried on by means of a horse-whim, the shaft being sunk directly on the ledge following its incline. Early in March of the present year, when at a depth of over three hundred feet, a pay-shoot was encountered showing values sufficient to begin the shipment of ore. A complete plant is now being installed, and development-work will be carried on until an accurate estimate of the ore-body can be made. This discovery is an additional proof of the gridiron theory in the formation of the ledges about Tonopah, and is an example of the vastness of the district covered by the mineral bodies.

"THEY'R

Drawn by George Wright

Y'RE OFF!"

Top Workings at the Ray Mine

THE CAMP AT LONE MOUNTAIN

TWENTY miles southwest of Tonopah and ten miles northeast of Silver Peak, is a promising camp, known as Lone Mountain. The Kendall group on the south slope of the peak which gives the location its name, was located December 21, 1902, by Zeb Kendall, W. S. Parker, H. Meade, S. P. Green, and Chris Madison. A ledge has been developed on the property, with six feet of quartz, and with twelve inches on the hanging-wall running from 400 to 2000 ounces in silver, five per cent. in copper, and twenty-five per cent. in lead. From a 40-foot hole, operated by a windlass, about six tons have been taken out of the above values. The ledge crops for 400 feet on the property, and holds to these values throughout. Four claims are included in the group, the Silver King and Silver Quartz on the course of the ledge, north and south, and the Chicago and St. Louis running parallel.

Two ledges also show on the Lucky Tom property, and surface assays show from $8 81 to $27 16. These claims are the Lucky Tom, Happy Hooligan, Star of the West, Lake View, Marie, Queen, and King Edward.

THE LIBERTY DISTRICT

EIGHTEEN miles north of Tonopah, in the San Antone range, in what is known as the old Liberty district, discoveries of rich deposits have been made. The Florence Extension Mine here has developed a ledge 17 feet wide which assays as high as $87 in gold and silver, with a large percentage of lead and copper, on the surface. The mine was located by Thomas Fleming, the claims being the Florence Extension the Dougherty, Maxwell, Tomblyn, Florence Extension Annex, Fleming, and Waters. Development-work is being pushed rapidly ahead.

Ore Train leaving Ray with the first Shipment from the Mine

RAY, TONOPAH'S NORTHERN NEIGHBOR

ANOTHER camp which has every right to stand upon its own individuality is that of Ray, situated about twelve miles to the north of Tonopah, and discovered by Judge L. O. Ray. The discovery of this camp was made on Christmas-day, 1901, when Ray located the Horn Silver, and Christmas Gift claims. On the following day he located the Teddy Roosevelt, and the Jennie Belle, lying, with the original locations, along the main ledge cropping from the surface, and the Ladysmith, and Boomerang, lying respectively to the north and south of Christmas Gift, and Teddy Roosevelt.

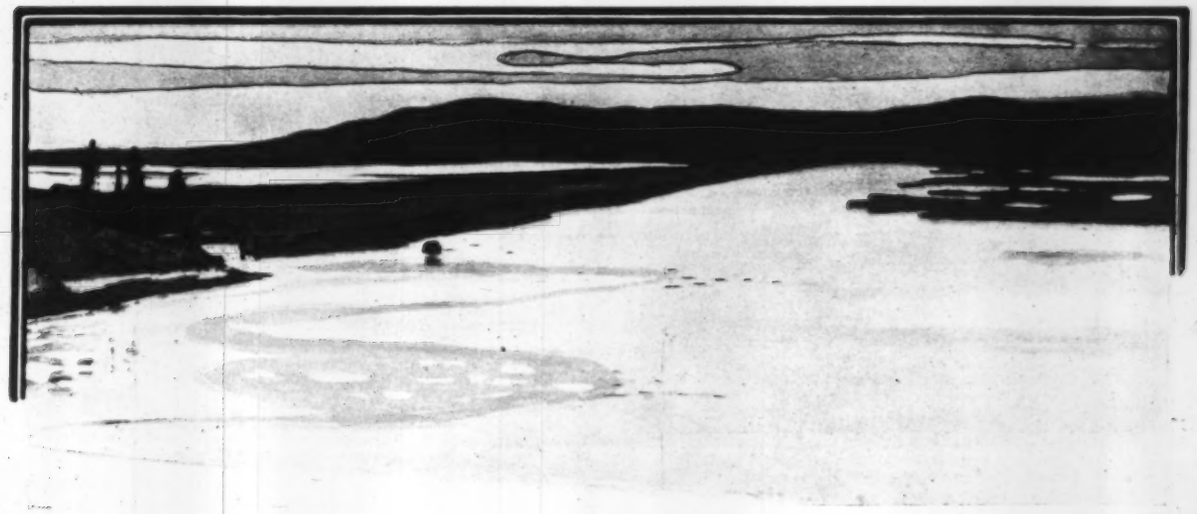
The ledge crops on the first four claims mentioned for a distance of over 4000 feet, and ore-carrying values of from $50 to $300 can be found on any 100 feet of this cropping. The formation is quartzite and lime, the foot-wall being of quartzite and the hanging-wall of lime. For a distance of 3000 feet the ledge has been opened up every 100 feet to test its value. The main workings of the mine are upon the Christmas Gift claim, and consist of a main shaft 300 feet deep, a drift running under the hill at the 160-foot level for 230 feet, an air-shaft 160 feet deep, 80 feet from the main shaft and connected with it by a drift, and a second station at the 230 foot level, with drifts running easterly and westerly 90 feet from the main shaft.

The ledges run in all these drifts, and in the main shaft, which follows its incline, from three to five feet wide. Shoots of ore occur in the various drifts at frequent intervals, running from 10 to 20 feet in length, and carrying values from $150 to $600 a ton. These shoots are characteristic of silver and lead ores. The ore is in the form of lead carbonates. At a distance of 200 feet from the shaft, on the 160-foot level, a shoot was encountered which is now furnishing ore for shipment. After 30 feet of drifting into the shoot it was found to still continue. By stoping two men can take out a carload a week of shipping ore. The shoot runs from three to five feet in width, and carries values for shipment of from $150 to $300 a ton. The first shipment from the mine was made February 18, 1903, the returns being between $225 and $250 a ton. A carload a week of this ore is now being shipped.

A Miner from the Ray District

From fourteen different places on the Christmas Gift, Teddy Roosevelt, and Jennie Belle claims two and a half tons of ore have been taken that runs $125 in silver, 35 per cent. in lead, and $12 50 in gold. These samplings cover a distance of 1500 feet. It is possible to walk upon the croppings for a distance of 3500 feet. The ledge runs 30 degrees south of east and 32 degrees north of west. The development of the mine has been carried on in an exceedingly economical manner, the workings thus far having cost less than $10,000. The present hoist is a horse-whim, but a steam-plant will soon be substituted.

RECLAIMING A STATE



Restraining Dam and Head-Gate
Irrigating system of the Lovelock Land and Development Company

NEVADA'S NEW PLAN FOR IRRIGATING 3000000 ACRES OF FARM LANDS

BY far the most important stream in Nevada is the Humboldt River, both from the volume of its water and in the area of agricultural lands commanded by it. The Humboldt rises in the northeastern portion of the State, and flows southwesterly almost to the western border, draining, with its tributaries, over one-eighth of the State's entire area.

This important stream flows through a series of great alluvial valleys, each the site of an ancient lake, following a most tortuous channel, in all its windings over 1000 miles in length.

Over one-third of the lands in the entire Humboldt basin, or about 3,000,000 acres, are subject to irrigation for agricultural purposes, and the fact that upward of 350,000 of these acres are already under successful cultivation is proof positive of the possibilities offered by the remainder of this great area.

The present developed sections of the basin were originally covered with sage-brush, which has now disappeared, and in its stead there appears a diversity of products, consisting of alfalfa, cereals, potatoes, fruits, and vines. This, however, applies to but little more than one-third of the area brought under the present systems of irrigation, the balance being devoted to the cultivation of native grasses.

The entire question of the future productiveness of these many thousand acres rests in the successful development of systems for the storing of water with which to flood them at the proper season. That there is ample water if only properly controlled has been absolutely proven, there being much less than ten per cent. of the annual supply now used, and a goodly portion of that is handled in anything but an economical manner.

The future development of these rich valleys along the Humboldt demands that the waters shall be held back near the sources of the river, to be turned down as they are needed during the season when they can be used for the perfecting of crops. Nature not only furnishes the water from the melting snows upon the mountain ranges, but has likewise made lavish provision for its storage. The larger tributaries of the Humboldt each possess one or more ancient lake beds along its course which can be economically converted into reservoirs by damming the narrow gorges through the rocks by which they are drained.

Many of these natural storage-basins are exceedingly large, ranging in size from 320 to 10,000 acres. Sixteen of these prospective locations already surveyed give an aggregate of 35,350 acres of reservoir area, with a total storage capacity of 1,000,000 acre feet. This vast volume of water retained during the flood season, and during that portion of the year when irrigation is not needed, which in reality is fully two-thirds of the time, would, if systematically used during the irrigating season, serve to supply 1,000,000 acres of land beyond that which is already under irrigation.

In all save one or two cases of those above cited, the construction of dams is both simple and economical, there being an abundance of material close by the projected sites and extremely easy of access. From expert reports this water-system would vary in cost from $2 50 to $8 per acre, in accordance with the expense of construction attendant on the installing of the necessary dams and ditches. The lands to be reached by these systems of irrigation can to-day be purchased at from $1 25 to $10 per acre, those at the lower price being held by the government and procurable through the State, and those of higher cost forming a portion of the land grant of the Central Pacific Railway.

Taking the Humboldt basin as an example, it is little wonder that the people of Nevada have turned their every effort toward the establishing of an irrigation system which will furnish means to develop those almost countless acres which have practically, since their creation, only awaited the hand of the husbandman to "blossom as the rose." The government has already turned its attention to a portion of this vast Nevada desert acting under the present irrigation law which not strangely was fostered and became a statute under the guidance of the State's junior Senator. These people who dwell here in the Great Basin between the Rockies and Sierras have long realized the possibilities of a section which has up to the present time attracted no further attention than to be classed as a portion of the great American desert. The change is under way, and not many years hence the traveller will behold instead of the broad stretches of leaden-colored sage, hundreds of farms and ranches bearing every imprint of prosperity. This prospect is not visionary, for at several points in the Great Basin private enterprise has tied the Hum-

The Town of Lovelock, Humboldt Valley
The centre of a most prolific section

Golconda Hot Springs Hotel

boldt's waters with results which go to prove what can be done with moderate capital and a little enterprise.

The government's action in reference to possible water development has turned the attention of private capital to the possibilities for investment in the irrigation projects of Nevada.

These lands along the Humboldt are noted for their prolific production, and the experimental conditions have long since passed for every section of the great valley. Every fruit, vine, cereal, vegetable, and grass native to the temperate zone finds a nurturing spot at any point along the winding river. Everything included in these classes matures perfectly and in profusion. One vegetable, in particular, has been proven to thrive in these beds of alluvial soil and that too, with so great a measure of quantity and quality as to exceed the same class of production in either California or the Eastern States. This is the sugar-beet which along the Humboldt, and in fact in all the valleys of northern Nevada, can be produced of such a quality as to run 28 per cent. fine in saccarine matter. In none of the States where the beet industry has been taken up can Nevada's record be excelled, and the beet is certain to become a strong factor in the agriculture of the Humboldt basin. The attention of capital is now being directed to these facts regarding the quality of Nevada's sugar-beet

Hon. Francis G. Newlands
Nevada's junior Senator, and father of the Irrigation Law

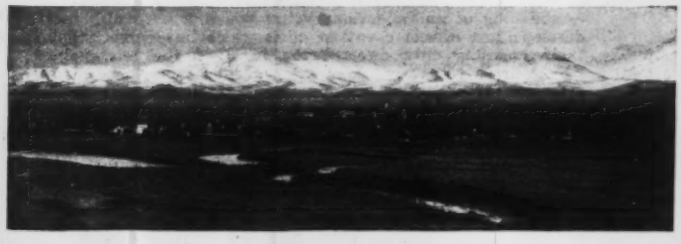
production which will undoubtedly result in the ultimate establishment of a plant at some point in the Humboldt Valley for the handling of such an output of the saccarine vegetable as can be raised on the irrigated lands along the river. To the soil-tiller this will mean much, for the sugar-beet of this section, with its high percentage of fineness, will be a crop which cannot fail to be productive of large returns.

With the possibilities already shown in the way of production and the certain establishment of several greater or lesser systems of irrigation the future of this valley is assured. Unlike most of the State, its transportation facilities are excellent, the Southern Pacific's principal transcontinental line running through the greater portion of the valley's length, at no point lying more than a few miles from the centre line of the available agricultural lands.

Along this line of railway there have already sprung up several important centres. These were first established as supply points for the great cattle ranges to which eastern and northern Nevada was for years given over before the possibilities of her valley lands were fully understood.

The most easterly of these centres is Elko, county-seat of the county bearing the same name. Elko has for years been a prominent point on the line of overland railway and a centre of the cattle industry. It is a thriving town of about 2000 people, possessing many modern features one would hardly expect in so far away a locality. To the northwest of Elko is located the pioneer storage-system for irrigation. This system has been in successful operation for more than a decade, located in what is known as Squaw Valley. The dam, 225 feet thick at base and 175 feet long, cuts off a cañon at the lower end of one of the ancient lakes. The restrained waters cover 400 acres to a depth of 20 feet, and supply irrigation to 5000 acres of land through twelve miles of canals. The cost of construction was $45,000, including ditches, or $9 per acre. These 5000 acres, formerly devoted only to grazing, became under this water system capable of producing a net revenue of from $20 to $50 per acre per annum. The success of this system has had a marvellous effect upon the future of the entire Humboldt basin.

A little more than a hundred miles west from Elko lies Winnemucca, which, like its eastern neighbor, had its beginning as a cattle centre. This little city is by far the metropolis of the valley. It is the home of over two thousand enterprising Nevadans, is the location of Nevada's only national bank, is equipped with electric lights, has two daily newspapers, and posessses a general mercantile establishment which both in stock carried and elaborate headquarters would do credit to any of the larger centres. Adjacent to Winnemucca lie several of the prolific tributary valleys



Winnemucca, the Central Point of the Humboldt Valley

An Oasis in the Desert
Station at Humboldt on the Southern Pacific Railway

of the Humboldt, in each of which private individuals have done something toward perfecting an irrigation system. These valleys are all noted for their fruit and cereal productions.

Throughout Nevada there are a great number of mineral springs noted for their waters. But one of several located in the Humboldt Valley has been developed, this being the Hot Springs at Golconda, near Winnemucca, and directly on the line of the Southern Pacific Railway. These springs were first located in 1864. The flow is 40 miners' inches of water, at a temperature of 198 degrees. Comparative analysis shows that the springs have practically the same mineral and medicinal properties as the famous Hot Springs of Arkansas. Connected with them are mud-baths, which have proven of great efficacy in the treatment of rheumatic disorders.

The springs were purchased in 1900 by Louis Dutertre, who expended a large amount of money in the erection of a commodious hotel and bath-houses.

Between Golconda and Winnemucca lies one of the choicest areas of bottom land in the entire valley, comprising upward of 100,000 acres, only a small fraction of which has been developed. These lands will be brought under the future irrigation system at the mouth of Rock Creek, one of those mentioned earlier in this article. Surveys have been finished on this system, and it is only a question of a short time when its completion will be accomplished, and this will give productiveness to an area capable of establishing no less than a thousand comfortable and profitable homes at a cost which the products of the land will return in a single season.

Another irrigation system of almost equal importance to that of Golconda is planned at Humboldt in the very centre of the arid country. Here nature has placed perfect foundations for the construction of a restraining dam in the midst of a most prolific area of almost level mesa.

At the extreme western end of the Humboldt Valley lies the town of Lovelock, with its fifteen hundred population and a surrounding country brilliant in examples of what can be done with Nevada lands under sensible irrigation systems. Fully fifteen thousand acres directly adjacent to the town are in the highest state of cultivation, a goodly portion being in wheat, which is consumed by the roller-mills located at Lovelock, the only plant of the kind in the valley. These mills have been in operation for seven years, running to their full capacity of sixty barrels per day. Lovelock wheat is noted for its quality, the gold medal at Chicago's exposition having been awarded to the wheat product of this section of the valley. Of this cereal Lovelock lands produce an average of thirty-three bushels per acre, with a record as high as sixty bushels.

The area of Lovelock's productive lands is this year increased by the placing in operation of the irrigation system installed by the Lovelock Land and Development Company. The system's location is at the very end of the valley, close to where the Humboldt River empties its waters into Carson Lake. It is by far the largest attempt at irrigation by private enterprise in the State and when complete will bring under its ditches from fifteen to twenty thousand acres. At present the reservoir capacity is 4000 acre feet, restrained by a simple dam on an area of 1000 acres. This supply will irrigate 4000 acres, which are now planted to alfalfa and wheat, and will for the first time produce crops during the present summer. There can be no question of the success of this system, the simplicity of which is such as to render but a single crop necessary to repay the investment both in the land purchased together with the construction of a dam and fifty miles of ditches. Under these conditions it seems almost strange that the system has remained so long unconstructed.

Lovelock's example will soon be followed by others, since a series of active operations are in prospect for developing the prolific lands along the Humboldt, and before many years have passed the sea of sage-brush will be transformed into practical and productive homes peopled by men who will make of the desert a blossoming field.

THE GROWTH OF NEVADA'S CATTLE INDUSTRY

ALMOST coincident with the first settling of Nevada the northern and eastern portions of the State became famous as cattle ranges. Here upon the slopes of the foot-hills grew in abundance the succulent native grasses which furnish fattening feed for the great herds which roamed from Texas to the British border.

In cattle, as in everything else, Nevada has advanced, her largest breeders departing from a sole attention to range cattle, and turning their resources toward the building up of registered herds. Of course there are still the great herds among the hills and valleys of the east represented to-day by those of Miller & Lux, the Sparks-Herrell Company, and the firm of Hardin & Sons. The latter of these herds make headquarters in Humboldt County, and numbers from fifteen to twenty thousand head, branding from three to five thousand calves per year.

Perfection II.

The movement to better the quality of Nevada's cattle has been a decided one, and its success is specially illustrated by the herd of Herefords maintained by John Sparks, Nevada's present Governor, at his "Alamo" ranch near Reno. Here in the past ten years has been gathered the best herd of registered Herefords on the Pacific slope, probably the best single herd of this particular breed in the United States, and one of the best in the world. Both by example and the introduction of blooded stock into other herds of the State, has the "Alamo" been a powerful factor in raising the standard of the range cattle in Nevada.

Governor Sparks has an experience as a cattleman and breeder extending over nearly every State from Texas to Wyoming, and his devotion to the Hereford breed is based upon that experience. At present he is devoted entirely to raising registered stock. He has been breeding and handling Herefords for twenty-eight years, but started his present registered herd ten years ago. His experience and convictions are best told in his own words. He said recently:

"In 1889 and 1890 Mr. John Tinnin and myself were ranging in Elko County, Nevada, and Cassia County, Idaho, having about 65,000 head of cattle running about, half Durham and half Herefords, cross-bred. We lost that winter, which was a very severe one, 35,000 head of cattle, and when we rounded up our cattle the following spring, 90 per cent. of those we found had white faces, characteristic of the Hereford. The Hereford had lived where the Durham had died. We had at times thought, a few years before, that we possibly had made a mistake in sticking so close to the Hereford blood, but the experience of this phenomenally hard winter showed us conclusively that our course was justified. I consider the Hereford by all odds the best beef breed. The cattle are prolific, early maturers, and wonderfully hardy. The infusion of the pure Hereford blood into the ranges of the State has already had great effect, and this effect will be even more notable in a few years. I regard Nevada to-day the best live-stock State in the Union."

The Alamo ranch is one of the most charming spots in the State, and is a striking example of what can be done in developing the State's natural resources. It is situated on the most attractive drive out of Reno, the old Virginia City turnpike, and takes its name from a fine grove of cottonwood adjoining the mansion, the name Alamo meaning cottonwood. The name has a particular significance for Governor Sparks and Mrs. Sparks, both being Texans, and from a section where "The Alamo" is a name to conjure with. As a stock-farm the place is a model, and as a country home, it is ideal. In the general cleanliness, arrangement, and equipment of its barns and corrals, with its complement

of great, round-eyed, white-faced thoroughbred cattle, it presents an attractiveness to stockmen that has drawn visitors from all over the country. In addition to his cattle, Governor Sparks has on the place a herd of elk, the only buffalo now in existence in Nevada, Shetland ponies, and other rare specimens. He has developed on the place an artesian well of hot water, with a volume of 112 gallons a minute, capable of being increased twenty-five per cent. in capacity. This well is, in fact, two wells, one pipe being encased in a second of larger diameter. One takes its water from a stratum 240 feet below the surface, and the other penetrates to a depth of 560 feet. Each flows independently. The well has been attached to a large swimming tank for the convenience and entertainment of the Governor and his guests, and arrangements are being made to heat the house entirely from it.

Connected with the Alamo is a second ranch, the Mayberry, located on the Truckee River at about an equal distance from Reno, and scarcely less delightful in surroundings. There are about 2040 acres in the two, and the herd includes at the present time some 400 head of registered Herefords. The father of the herd was the Columbian Exposition prize-winner, Earl of Shadeland 30th, 30,725. Since 1893, Governor Sparks has constantly imported from Herefordshire the best stock that could be bought. Royal winners from England and sires from the best herds in this country have been added from year to year. The herd is now headed by Perfection II., 102,632, and Lelax, 102,631, two noted sons of the $10,000 Dale, 66,481. Both these bulls have been sweepstakes-winners wherever shown, and their produce shows them to be truly great sires. The blood of The Grove III., Lord Wilton, and Anxiety predominates in the herd.

Governor Sparks sent out the first blooded Herefords ever

Ranch of Hardin & Sons
Headquarters of the Hardin herds in Humboldt County

shipped to Honolulu, and has had much to do with improving the stock in the islands. He has also shipped all over America and abroad.

He has been closely identified with the cattle interests of the State for many years. His first cattle experience was at the close of the civil war, when he began buying cattle in Texas, and driving them across the plains, often reaching Oregon and the Northwest before finding a suitable market. He then started breeding range cattle, and located in eastern Nevada and Idaho in 1881. He still has large landholdings in Texas. He at one time had, with his partner, 75,000 head of cattle in Elko County, Nevada, and Cassia County, Idaho, and branded 16,000 calves a year. The shoesole and wineglass brand, still in existence and owned by the Sparks-Harrell Company, was famous throughout the cattle-dealing country.

Cattlemen

Another breeder who is using every endeavor to improve Nevada's cattle is T. L. Oddie, of Tonopah, who has lately purchased the Pine Creek Ranch, a tract consisting of 3000 acres in Monitor Valley, Nye County.

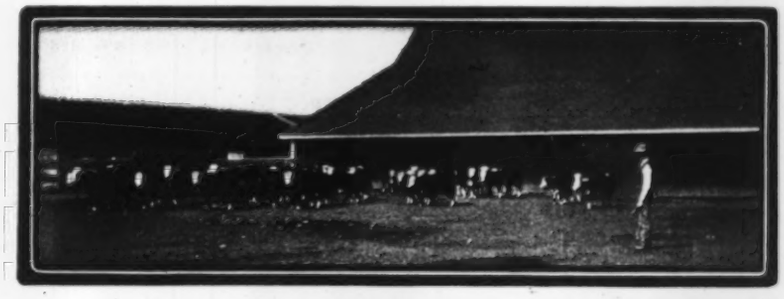
Pine Creek Ranch is located at an elevation of about 8000 feet in one of the highest, as well as one of the most picturesque, valleys in the United States. The ranch is intended for the breeding of blooded stock, with particular attention to Herefords and thoroughbred horses. This latter venture is largely an experiment in Nevada. The qualities of the country in producing fine stock has been shown in the lower altitudes, but it is the idea of the owner of the ranch that thoroughbred horses which are given an opportunity to run over the hills in the highlands, together with the advantage of the fine quality of feed found in that section, will develop great staying qualities as well as speed. The valley has a range of 300 miles, and there is a raise in the Pine Creek cañon of from 8000 to 13,000 feet in less than eight miles. There are now at the ranch over 100 head of registered Herefords, from the three best families of this famous breed. It would be hard to find a more beautiful spot. Pine Creek running past the ranch-house, offers unexcelled fishing, and the hills afford the best of hunting. Mt. Jefferson overlooks the valley, and there is an abundance of wood, including balm of Gilead, birch, poplar, etc. Alfalfa grows in abundance.

Far down in the centre of the State in what is known as the

Lelax

White Pine country at the Cleveland ranch is still another collection of magnificent bred animals which has made an enviable reputation for its owner.

These are only a few of the examples to be cited among the great herds of Nevada. Every one is leaving a constant impression on the range herds of the State, and the result is the perfecting of Nevada's cattle to an extent that has no parallel in America. From the very first Nevada has possessed a reputation for its high quality of beef, but by the infusion of thoroughbred blood it is in reality outreaching itself.



A Group of Youngsters at the Alamo Ranch

THE GATEWAY TO NEVADA.

EVERY State possesses some city which by special location gains commercial and industrial prominence. Such a city is Reno, the most important of all centres in Nevada.

Beginning as a little stage station on the Virginia turnpike, Reno saw the travel of the old staging days drift by its doors toward the bonanza land of the Comstock, but by and by there came the opening of the transcontinental railway, quickly followed by the construction of the Virginia and Truckee Railway, which wound its way to the location of Virginia City and Gold Hill. Then Reno began to gain in importance, for she was located at the junction of the two lines. Later a narrow-gauge line of railway intended to reach northward into Oregon found its beginning at Reno, and the little city assumed the position of a distributing centre for the whole of western and southern Nevada.

There has been nothing phenomenal about Reno's progression. She has simply advanced by her unquestioned rights of position until now her prosperity is unquestioned, and she is recognized as the foremost city in the Sage-Brush State. Here Nevada has located her principal institution of learning, the State University, and about its doors is clustered the literary and artistic talent of this Western commonwealth. More than three hundred students are in constant attendance, and from Reno there have gone out many university graduates bearing a store of knowledge which has distinguished them in every corner of the world.

If Reno's progress has been certain in the past, it will beyond question be rapid to the same extent in the years to come. Her commercial houses are all prosperous, and her financial institutions apparently sound. In all the vast industries of Nevada there is prosperity for this city by the Sierras. No matter whether the success is made in the mines at Tonopah, among the cattle herds of the eastern counties, or in the lumber districts of the high Sierra, some portion of it must drift to Reno as a central commercial point.

The last year has brought a wave of prosperity which if maintained will quickly transform Reno from a frontier town into a metropolitan city. It may be seen in the construction of modern buildings upon every street, in the municipal improvements which are under way, in the crowded condition of her really excellent hotels, and in the general bustle and activity of her markets.

The Truckee River, with its wonderful fall from the mountain slopes, runs directly through the city. This river will ere long become a great factor in Reno's prosperity, for its powerful stream will be chained by modern methods, and its force directed toward the operating of industrial plants, some or all of which will certainly find a location within Reno's limits.

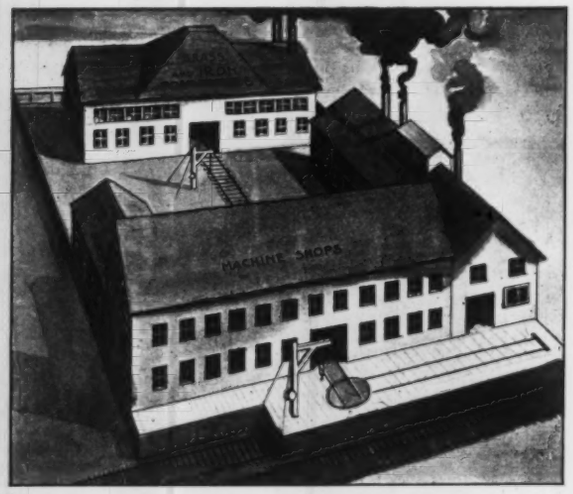
A notable addition to Reno's industries has come within the last six months in the plant of the Reno Engineering Works, which covers four acres of ground at the eastern edge of the city, adjoining the lines of the Southern Pacific Railway. These works, consisting of large foundries, forging, boiler, and machine-shops, employ a large number of skilled mechanics, and are equipped to construct all classes of mining and milling machinery.

One of Reno's Pioneers

In these works Reno possesses the largest plant of this character between San Francisco and Denver. Its equipment is modern in every respect, the very best and most recently invented machinery having been installed—this machinery on the whole, being designed to reduce labor and time to a minimum, and to produce an absolute uniformity of work. For fuel, melting, and forging purposes crude petroleum alone is used. Pneumatic riveters and tools for boiler construction form an important portion of the plant. As this institution intends to devote its principal effort to the construction of all classes of mining and milling machinery, location was a principal factor, which Reno fortunately supplied, and from the extent of its works Reno can be turned to for the supplying of any class of engineering equipment which can be secured in the largest Eastern manufacturing centres, and can supply not alone Nevada, but any section of the Pacific coast as well.

The scope of this engineering plant also includes the equipment of electric lines and lighting plants of every size and class. The description of this plant gives an idea of its importance to Reno, providing, as it does, not only an important industrial advance for the city, but also permitting the mining and manufacturing interests of Nevada to secure their equipment at first hands and

Abattoir, Ice, and Electric Plant at Reno



Plant of the Reno Engineering Works

with the least loss of time and expense. Another of Reno's newer industries is the establishing of a most perfect system of abattoirs for the handling of all classes of meats. This establishment centres the meat trade of nearly the whole State at Reno, and maintains, in addition, an ice plant, and an electric-lighting plant, from which the city is supplied.

From a mining standpoint Reno possesses several distinct characteristics. Both to the north and south are located paying properties, while but four miles from her centre lies one of Nevada's great producers. This consists of the Wedekind mine, discovered but two years ago within sight of the city and upon ground that had been tramped and herded over for years. It was located by George Wedekind, and is now the property of Governor Sparks. Wedekind was an old piano-tuner with an ambition to discover a mine where he spent the money he earned tuning pianos in prospecting. He finally located three claims, the Reno Star, the Safeguard, and the Eagle, now composing the Wedekind group, from which there has already been taken out over $200,000. Great blocks of ore have been found in the shaft on the Reno Star claim, running over $3000 to the ton, and Wedekind found ore running over $500 to the ton in the wagon road across the claim, over which there had been travel for forty years.

The discovery of the Wedekind resulted in the location of the Desert King adjoining, sixty-three per cent. of which is also owned by Governor Sparks. The Wedekind shaft is now down 220 feet, and a station was established at 100 feet, from which cross-cutting was begun. Out of this shaft alone $150,000 has been taken in less than two years. The Desert King shaft is down 150 feet, and goes through forty feet of solid ore. Connected with the Wedekind there has been built a leaching plant with a capacity of twenty tons a day, and costing $25,000. The present showing of the mine is that it will prove one of the biggest producers ever opened up in the State. The Wedekind has a complete electric hoisting-plant, with a shaft-house covering the entire top equipment. The Desert King has a steam-hoist, also housed with the gallows frame.

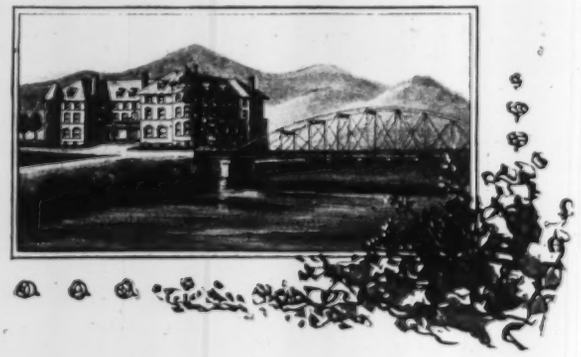
Just to the north of Reno lies still another extremely prosperous mineral district of which the centre is the Pyramid mine. So great is the output of this group that a railway is now under construction toward its location which will not only find plenty of carrying-trade from these mines, but will open up a section hitherto without transportation facilities, and bring Reno in touch with a still greater area of territory.

Reno is to-day recognized as a distributing centre for all of the ores shipped from the various mines located both north and south. Within her limits have been established the only sampling works in the State, and the railroads have of late granted the concession of a stoppage at Reno, for sampling, of any cars shipped through to the smelters of Salt Lake City, San Francisco, or the East. This renders Reno at once the principal ore-market for all the mines which are not reducing their own ores, and will eventually result in the establishment of an exchange for the handling of the output of these properties.

These are some of the industrial advantages possessed by this city which has in but a few years grown from a stage-station to its present condition of importance. With the harnessing of the powerful waters of the Truckee, Reno will certainly add to her manufacturing advantages, and there will be powerful additions to her already more than infant industries.

The lumber industry is another prominent factor in Reno's present and future prosperity. From the great forests of the eastern slopes of the Sierras lying to the northwest of this point, more than half the output finds its way to or through Reno, *en route* to the various markets of the world. In this line there is and will continue to be extreme activity, several new and important camps having been lately established in the northern forests, every one of which forms a portion of Reno's tributary country. With the increasing demand in Eastern markets for Sierra lumber, there can only be an increase in the magnitude of these operations, all of which is certain to find its way through Reno as a distributing point.

As a city of homes Reno is no less important than in her commercial features. Her location is one of the most attractive in the whole mountain country, her area covering a series of gently rolling hills with the blue Sierras as a background, and the crystal waters of the Truckee tumbling through her very centre. Her people have had an eye to the picturesque, and her more modern homes have been constructed so as to blend into the picture, forming a part rather than a contrast to the beauties Nature has showered upon the city's location.



The Riverside Hotel, Reno

In addition to Reno's attractiveness as a city of homes, there are her educational advantages to be considered, her schools following close upon her university in ability of instructors and thoroughness of system. These very facts have held many residents in their own home when the education of a rising generation would otherwise have attracted them to some other location had Reno been less favorably equipped.

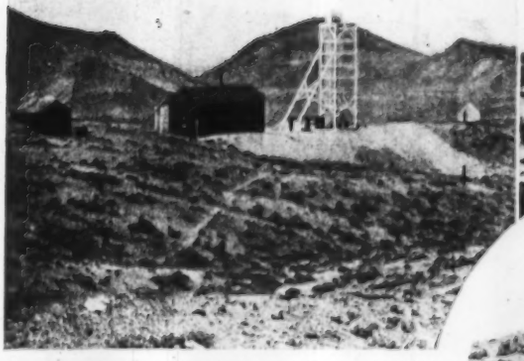
Round about the city lie the verdant lands of the famous Washoe Valley, noted for its wonderful productiveness. From hill to hill across the whole valley there is a succession of beautiful farms under the very highest condition of cultivation, denoting the prosperity which has come to this section of the State.

The Mizpah mine is now blocking out its ore bodies and refraining from taking out ore save as required in development. This system will be followed until a depth of 1000 feet is reached. Montana-Tonopah ore closely resembles that found on the 1000-foot level of the historic Con-Virginia, but actually runs higher in grade. The ledges of the Montana-Tonopah, while parallel to those of the Mizpah, are evidently distinctly separate fissures, and prove the wonderful deposits of the district.

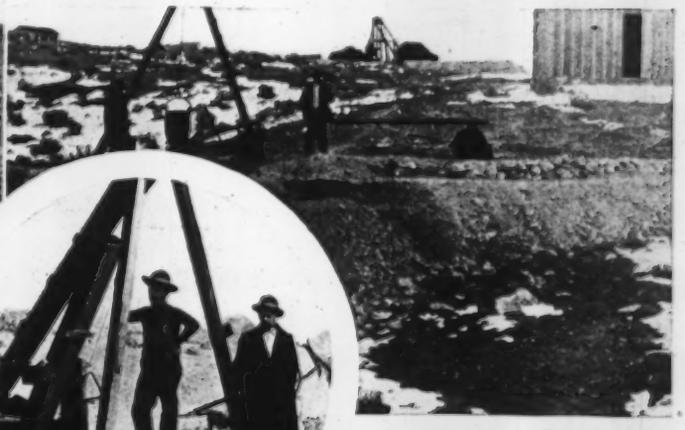
The Gold Hill property, directly south of the Tonopah Company's claims, is the pet of the original locaters of the camp. The claims were located by Butler, Oddie, and Brougher, directly after the location of the main group, as their particular property, and it is stated by Mr. Oddie that the main group was sold in order to secure money with which to develop Gold Hill. Upon the six claims five distinct ledges are defined from which leasers took fifteen thousand dollars in 1901. This is the only group in the district where the lode porphyry crops to the surface. Gold Hill has a fine hoisting works, with

Hoisting Works at Little Tonopah Shaft

Looking West from the North Star Shaft



Hoisting Works at the New York Tonopah Mine



First Shaft at the Tonopah Silver Top

Principal Shaft at the Golden Anchor Mine

Head of Shaft at the United Tonopah

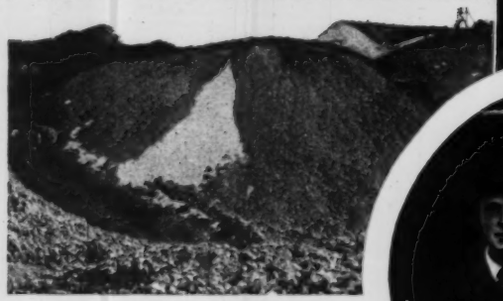
First Development on the Commodore Group

a double-compartment shaft now sunk 450 feet. At 500 feet the plans call for cross-cutting, and include a thorough development of the property.

Adjoining Gold Hill on the south lies the Rescue claim. The Rescue is located directly on the strike of the Gold Hill and Valley View ledges, and but 600 feet from the developed portion of the former. It also lies within 600 feet of the Desert Queen shaft, and high values have been developed in the Gold Hill ledges within 500 feet of the Rescue shaft. Development was started in December, 1902, with a two-compartment shaft, timbered and now sunk to a depth of 200 feet. It is expected that a station will be established at 300 feet, but this will be determined by the formation. There is now being installed a steam hoisting-plant, one of the most complete in camp. It includes a 60-horse-power boiler, with a 45-horse-power engine, safety cage, and all appliances capable of handling the output of the mine to a depth of 1000 feet. The formation in the Rescue shaft follows closely the general formation where ore has been discovered.

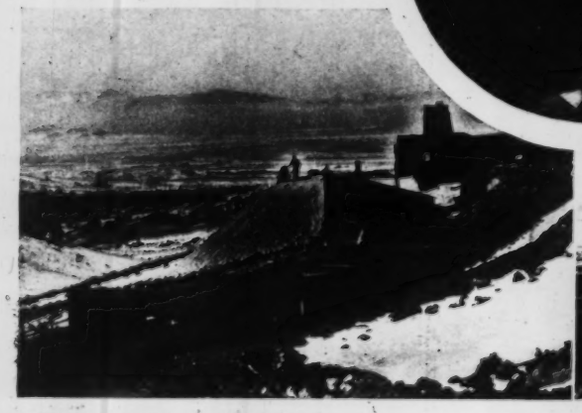
Shaft of the Tonopah Fraction Extension

Development Plant at the Tonopah City Group



Great Ore Dumps at The Mizpah

Power Plant and Hoist at the Ohio Tonopah



Head of the Shaft on the Molly Group

Cage at the Siebert Shaft, Mizpah Ledge
General-Manager Oddie and Chief-Engineer Siebert

Power Plant and Hoist at The Halifax

Music at the World's Fair

PREPARATIONS upon a large scale are being made for the music which is to be made a feature of the St. Louis Exposition in 1904. There are to be indoor orchestral concerts and organ recitals, open-air band concerts,—for which there will be no admission charge,—and performances of choral music on a large scale. The idea of the committee in charge of the musical arrangements is to aim at appealing rather to the popular taste than to the more limited demand for music of the highest class, although there will be no sacrifice of dignity in the programmes. Considerable attention will be paid to works by American composers, which, it is hoped, will give a decided impetus to the best creative endeavor in native music. Competent conductors are to be engaged for the orchestral concerts, among whom, it is expected, will be one of the celebrated "bâton prima donnas," as they are called abroad, of Europe. For the organ recitals, in which the most eminent American and foreign organists will take part, a special instrument will be constructed; it is to contain nearly 150 stops, and will be, it is said, the largest organ in the world. The orchestral and organ concerts are to be held in Festival Hall, the centre of the main group of buildings.

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THE OUTLAW

BY

HAMLIN GARLAND

A Story in Two Parts.—Part II.

INSTANTLY the street became a place of savage outcry.

"Kill him! Kill him!" the white men all shouted.

Like a bear at bay Hakonuse faced his hereditary enemies, and jerking from his pocket his white paper he held it high.

"See, this is true, read it!" he said.

This action saved his life, for all were curious to see what this long official envelope contained.

One of the men took the envelope and opened the paper and read it. A burst of derisive laughter followed the reading. Then the sheriff came and took Hakonuse, who went willingly, for he feared for his life in the midst of the crowd in the street, which grew greater each moment.

He recoiled sharply as they came to the door of the jail. "I will not go!" he said. "Why do you put me in there? I have done nothing."

The sheriff, ready to make capital for himself in the eyes of the mob which had followed him, put his revolver to his captive's head, and said, brutally, "Git in there, or I'll blow your head off."

Hakonuse understood the man's action, and submitted to be pushed into the cell, and was locked in, still holding in his hand the paper on which he had put his new resolution to be friendly with the white man.

Ordering my team I drove away to town, a long, hard, dusty road, but reaching the hotel too late to call on the sheriff, I was forced to wait till morning. The little rag of a daily paper had used the shooting as a text for its well-worn discourse. "Sweep these marauding hell-hounds out of the State or off the face of the earth," it said editorially. "Get 'em out of the path of civilization. Scenes of disorder like that of yesterday are sure to be repeated so long as these red pets of the government are allowed to cumber the earth. The State ought to slaughter 'em like wolves."

I was quite familiar with such articles, but I went to bed that night feeling more keenly than ever in my life the difficult position I was called upon to fill. To race hatred these people had added greed for the Shi-an-nay lands. In this editorial was vented the savage hate of thousands of white men. There could be no doubt of it—and were it not for a fear of the general government, the terms of its hatred would have been carried out long ago.

In the early morning I hurried to the jail.

The sheriff met me suavely. "Oh—certainly, Major—you can see him," he said, but his tone was insulting.

As I entered his cell Hakonuse looked up with a low word of pleasure. He shook my hand, then slowly signed:

"My friend, take me away from here. I cannot bear to be locked up. I have done nothing. When I showed my paper the cattlemen laughed. When I reached my hand in friendship they spat upon it. This made my heart very bitter, but I did not fight."

I said, "Do not worry, I will see that you are protected."

I turned to the sheriff. "What are you holding this man for?"

"For shooting with intent to kill."

"But he didn't shoot. He had no weapon. It is absurd."

"How do *you* know he didn't?"

"Because all his companions say so; he says so."

"Oh! You'd take his word, would you?"

"Yes, in a thing of that kind. Did you find a gun on him?"

"No—but—"

"What chance did he have for concealing it? Were you there when the shooting took place?"

"No—but credible witnesses—"

"As a matter of fact, you know the saloon-keeper was struck by a bullet aimed at Hakonuse by a cowboy. Where is that cowboy? Why has he not been arrested?"

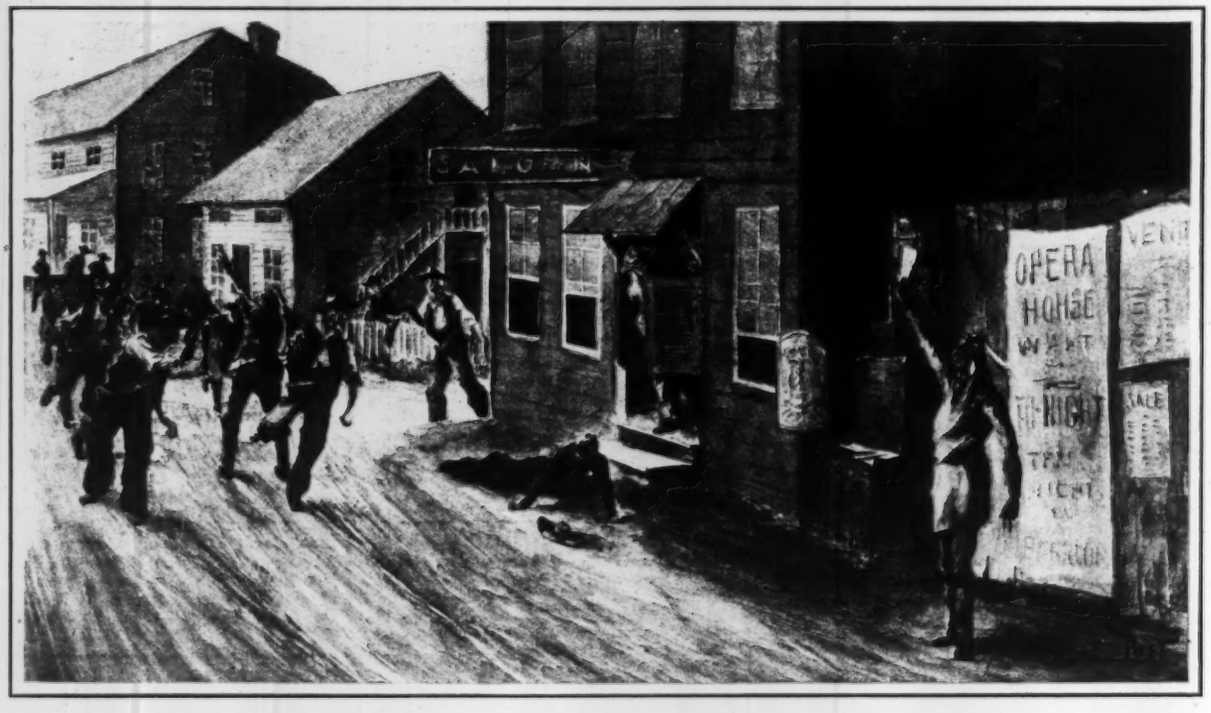
"I don't believe it."

"It's not your business to believe or disbelieve. Did you have a warrant to arrest this man?"

"No matter whether I did or not," he replied, insolently, "he's here, and you can't take him away. You can protect your thieves and murderers on the reservation, but when they come in here and go howling around you'll find the case different." In this tone he blustered.

I was in fighting line now and he saw it. "I believe Hakonuse to be entirely innocent, and I'll see justice done. I'm going to see the judge, and secure an order for his release."

The visit to the judge was still more disheartening. He too was suave and patient, but it was plain he intended to do nothing to help me. "It may be that a mistake has occurred, but if so the trial will clear your man. As it is, the Indian was arrested in a



"See, this is true, read it!" he said

street brawl in which a man is shot. The Indian is arrested, I may add, in due course of law, and must stand trial."

"Very well, we'll go to trial—but meanwhile release my man on parole. I'll answer for him."

The judge had been expecting this, but professed to ponder. "I don't think that would be wise. We've had great difficulty in apprehending offenders. We might find this man hard to reapprehend. I appreciate your desire to—"

"Judge Bray, you are mistaken," I replied with heat, for I understood his covert insult. "You have never failed of getting your man but once, and then, as you know, it was the fault of your sheriff."

The judge was obdurate. "The citizens are incensed at the frequent depredations of your charges," he said, "and they will not submit longer to any laxity. I cannot help you."

"Very well," I said, as I rose to go, "I'll see justice done this man if I have to bring the whole power of the national government to bear on you. I will enlist the aid of every lover of justice in the land. Hakonuse has been grossly abused. So far from shooting he came in here as my messenger, unarmed and peaceful. Your drunken citizens assaulted him. I do not wonder that my people say you have the hearts of coyotes."

As I drove away out of the squalid town I grew sick at heart, feeling the pressure of the cruel, leering, racial hate of the cattle-men to whom the red man was a sort of big game. It seemed that among all these thousands of American citizens not one had the heart to stand out and say, "I'll help you secure justice."

My anger made me momentarily unjust, for there were many worthy souls who would have joined me could they have been rightly informed of the case, but at the moment I felt the helpless dismay of the red man when enmeshed by the laws of the whites.

But as I rode I planned a campaign which should secure justice for Hakonuse. My meeting with the half-frenzied wife of the captive only added new vigor to my resolution. With face haggard with suffering the poor woman cried out to me, "Where is he —my husband?"

I gave her such comfort as I could, and drove on, mentally composing letters to the Eastern press which should make the townsmen writhe with shame of their inhumanity.

Court did not sit for many weeks, but Hakonuse knew nothing of that. He lived in daily hope of being released. He fed his heart on the words of his friend the agent. He brooded over his wrongs like a wounded wolf in his den, till his heart became like lead in his bosom. The glow of his new-found love of the white man had died out—smothered by the cold gloom of his prison. He remembered only one white face with pleasure—that of his agent—all others were grinning or hateful or menacing.

He would have gone mad only for the visit of his wife and children, who came to see him, and were allowed to approach the bars of his cell so that he might lay his hands on the head of his little son. These brief visits comforted him—for the sake of his wife and children he lived.

In a week or two the people of Big Snake had quite forgotten Hakonuse. If any word recalled him to their minds they merely said: "Do him good to feel the inside of a stone wall. It'll take the fight out of him. He'll be good Injun when he gets out. He's in luck to escape being strung up."

Now the town possessed a baseball team that had defeated every other club in the State, excepting one. The Falls had proved a Waterloo to Big Snake on the Fourth of July, and so its citizens fairly ached for a chance to "do the Falls up," and win back some of the money they had lost.

One morning about two weeks after his imprisonment Hakonuse heard the sound of far-off drums, and thought the soldiers were coming at last to release him. His heart leaped with joy, and he sprang to his window and there listened long. He could hear plainly the voice of the bugle, and he fancied he could detect the marching of columned feet. His friend, the agent, was surely coming to punish his captors.

He was not afraid of the soldier chiefs,

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for they fought honorably. They did not shut their enemies up in cells and take their arms away. They made war in the open air and on the hills. A shout of joy was about to break from his lips when the jailer entered the corridor much excited. He made a great many signs to his captive, but Hakonuse only understood one or two of them. "Come with me," and "I'll kill you."

He drew his blanket round him and thought. "I will go. I will at least escape these walls. If I die I will die under the sky where the sun can see me."

He quietly followed the sheriff outside, but when he saw the open handcuffs he rebelled and shook his head.

The sheriff made bungling signs again and threatened him.

Hakonuse comprehended nothing of all this save the motion toward the gun which he took to mean that he was to be killed. The excitement of his captor, the mystery of all he did, his menacing fists were convincing. But Hakonuse was a chief. He had never flinched in battle, and as he felt the wind of the wide sky on his face he lifted his eyes and said, "I am ready—but I will die fighting."

The sheriff motioned him to get into his buggy, and he obeyed—for the hand of the sheriff was ever on his revolver—and so they rode through the town, which was almost deserted. Far up the street Hakonuse could hear the noise of the drum, and his heart swelled big with a sense of coming trouble. Was he being led out to be tortured? Perhaps he would be permitted to fight his way to death?

A man at the door of the drug-store called out, jovially, "Where are you going, Mr. Sheriff?"

"Out to see the ball game. I happened to have only this one prisoner, so I thought I'd take him along. Damned if I'm going to miss the game for a greasy buck Injun."

"Look out he don't give you the slip."

The sheriff winked meaningly. "There'll be a right lively fox-hunt if he does. The boys would like nothing better than to rope an Injun to-day. It would draw better than a bull-fight."

They both laughed at this notion, and Hakonuse again understood only the menace in the sheriff's voice. As they neared the grand stand the noise of the great crowd reached across the quiet fields, and Hakonuse could see hundreds of people streaming along the road before him. His limbs grew tense. It was plain that his captor was driving directly toward this vast throng of savage white people, there to torture him.

He looked round him. On either side were rows of growing corn, and beyond the field on the right rose a grove of tall trees marking the course of the river. As he remembered this his final resolution came. "If I am to die I will die now," and he sprang from his seat to the ground and dived beneath the fence. He heard the sheriff's gun crack twice and thrice, but he rose unhurt, and with a wild exultation in his heart ran straight across the tender corn toward the river. Again the sheriff fired, his big revolver sounding loud on the windless air.

Then, as if his shooting were a signal, a squad of cowboys rose out of a gully before the fugitive and with wild whoopings swept toward him. They came with lariats swinging high above their heads, and Hakonuse, knowing well their pitiless ferocity, turned and ran straight toward the sheriff, who stood loading his gun on the inner side of the fence. As he ran, Hakonuse could see great ranks of yelling people rushing over the field toward him. He fled now to escape being dragged to death by the cowboys, hoping the sheriff might shoot him through the heart as he came near.

The sheriff fired twice at long range, but missed, and as the panting fugitive ran straight toward him, the white man fell to the earth as if shot, and crawled under the fence, leaving Hakonuse to face a squad of twenty infuriated mounted hoboes and a thousand citizens clamoring for blood. With the light of hell on their faces they shot down the defenceless red man, and with brutal heels stamped on his face as if he were a rattlesnake. When he no longer breathed they stabbed the inert body a hundred times and shot it full of bullets. They fought for a chance to kick it. They lost all semblance to men. Wolves fighting over the flesh of their own kind could not have been more heartlessly malevolent, more appalling in their demoniac frenzy.

And then above the clamor of their breathless cursing and cries of hate a strong clear voice made itself heard, a vibrant manly voice:

"Stop in the name o' Christ!" and through the crowd a tall young man in the garb of a Catholic priest forced his way. His big broad face was set with resolution and his white brow gleamed in the midst of the tumbling mass of bronzed, weather-beaten border-men with a singular paleness.

"*Stand back!* Are you fiends of hell? Where is your shame? A thousand to one! Is this your American chivalry- Oh, you devils!"

He stood astride the fallen man like a lion over the body of his mate. His body quivered with the sense of his horror and his splendid wrath.

"God's curse on ye—if you touch this man again." The crowd was silent now, and he went on, and his voice cut like a sabre: "I have seen the beasts of the African jungles at war, and I know the habits of the serpents of Nicaragua—I know your American bears and wolves—but I have never seen any malevolency to equal this."

Every word he spoke could be heard by the mob; every man who listened looked aside, helpless under the edge of the young priest's scorn. "You are the brave boys of which we read," he said, turning to the cowboys. "You are 'the Knights' of the plains—" Then his righteous wrath flamed forth again. "Knights of the plains! Mother of God! The grave-yard jackals would turn to lambs in ye're presence. Brave men ye are to rope and drag a defenceless man—and you!"—he turned to the slinking sheriff—"you are of my church—I know you. The malediction of Heaven hangs over *you* for this day's work. Take up the body of this man. He is dead, but his blood will yet make this town a stench in the nostrils of the world. You cannot do these things to-day and not be accursed of all Christian peoples."

With a contemptuous wave of his hand he dismissed the mob. "Go home! Go back to your wives and children and boast of your great deed. Leave the body of the dead with me. His soul is with his Maker."

The crowd slunk away, leaving the sheriff, the priest, and a doctor who had volunteered his services to examine the mass of bloody flesh that had once been a tall and powerful commander of men.

"The man is alive!" said the doctor in a tone of awe. "Life is not extinct."

"Save him—for the love of Christ!" exclaimed the priest as he dropped on his knees beside the torn and trampled red man. "It would be a blessed miracle of Christ if he withstood such punishment. It is impossible!"

"His heart is beating—and I think it grows stronger," repeated the doctor as he fell to work with deft energy.

"What is this?" asked the priest as he picked up a bloody and crumpled paper. He opened it and read aloud: "I am Hakonuse. Long I hated the white man. But now I am changed. I want to be friends with the white man." As he finished, he prayed silently with a sort of breathless intensity while the tears ran down his cheeks:

"Lord Jesus, grant me humbleness and patience with these people. Let my heart not harden with hate of this injustice."

Then looking at the poor bruised body of Hakonuse, he said:

"O God! the pity of it! The pathos of it! His heart was good toward all men. I do not know when or where this was given, but it breaks my heart!"

They took Hakonuse up, the priest received him in his house, and cared for him, and he lived, but so battered, so misshapen that his own wife did not know him.

The cloud of his hate and despair never lifted. He spoke no word to any white man save to the good priest and to me, and when he died neither of us knew of it.

What did I do about it? Nothing. What could I do—except tell the story.

Decorative Art at the World's Fair

See Page 1016

HOWEVER the Louisiana Purchase Exposition may in future be compared, favorably or otherwise, with previous great events of the kind, it will without question far surpass all others in one important feature at least—the grandeur and originality of the sculpture which will adorn its grounds and ornament its buildings. A few of the chief features only can be touched upon.

Passing through the principal entrance to the grounds, the visitor will behold a great monumental feature which Mr. Bitter has named "The Apotheosis of St. Louis," and the execution of which has been intrusted to Mr. Charles H. Niehaus. In the centre of a vast plaza, surmounted upon a massive architectural base, will rise an equestrian statue of Louis IX., for whom the city of St. Louis was named. The city itself will be symbolized by a female figure sitting with outstretched arms in front of this monument, at the foot of the base. The winged figure of Fame is whispering in her ear the names of those who have made her great, while through her hands passes an endless scroll of the famous deeds of her children. The carving in relief about the base of the equestrian statue and various other figures grouped about it tell the story of the city's birth and growth.

This wonderful monument, and two notable equestrian statues of Joliet and De Soto, will form the chief features of what will be known as "Monument Court." Looking up from "Monument Court," one will behold the waters of the three great cascades tumbling from an elevation into the grand basin. At the northern end of this basin, in the broad boulevard which bisects the main group of Exposition palaces, will stand the Louisiana Purchase Monument, designed by Emanuel L. Masqueray, and all the sculpture upon and surrounding which is the work of Mr. Bitter. This monument, rising one hundred feet in height, is a very beautiful piece of work, consisting of a graceful shaft crowned by the figure of Peace, calling the nations of the world together in friendly competition.

It is hard to conceive greater possibilities for magnificence and monumental effect than that which lies in the hands of the artists who have been intrusted with the designing of the three great cascades, which, extending for over two city blocks in length, pour their waters into the grand basin, from which they are distributed to all the lagoons throughout the park. The central cascade, surrounded by twelve massive groups, will be the work of Mr. H. A. MacNeil, and is to be known as the Fountain of Liberty. The two side cascades are being executed by Mr. Isidore Konti, and will be symbolic of the Atlantic and Pacific oceans. The three cascades, taken as a whole, give expression to the sway of liberty from the Atlantic to the Pacific.

About the Fine Arts Palaces the most eminent sculptural efforts of the Exposition will be gathered, for these palaces and their decorations are to be permanent. Mr. D. C. French and Mr. Louis St.-Gaudens will execute the two great groups representing Sculpture and Painting, which will ornament the entrance.

The Presentation of a Minister

By A. Maurice Low

See front page

THE formal presentation to the President of the United States of the latest member of the diplomatic corps is always an interesting and picturesque ceremony. It is a relic of tradition, and a suggestion of that side of diplomacy which resorts to honeyed phrases but means nothing. When an ambassador or a minister is presented to the President he reads to him a speech in which he expresses the profound joy which it gives his august sovereign to appoint an envoy to reside near the person of the President, the eagerness with which he avails himself of the opportunity to recall the traditional friendship which has always existed between the two countries, and the intense admiration which they have for each other. Now all this sounds and reads very well, but as a matter of fact a copy of the new envoy's speech has been previously submitted to the State Department, and there carefully read by the Secretary of State to see that no expression is used to which offence could be taken. Usually these presentation speeches do not require revision, but occasionally it has happened that a word or a phrase has been used which diplomacy considers might just as well be omitted, and in that case it falls to the lot of the Secretary of State to intimate in the most delicate language possible the wisdom of making the change, and of course the change is always made.

The Etiquette of It

The rule for the presentation of an ambassador or minister is quite simple. President Roosevelt has set the fashion in the case of the presentation of an ambassador to send his private carriage to the embassy, and from there to have the ambassador escorted by his military aide to the White House. This, however, is only done for ambassadors, following the European custom, and ministers observe the precedent which has always prevailed with this government, of going to the State Department and from there being escorted to the White House by the Secretary of State. When Sir Chentung Liang Cheng, K.C.M.G., the new Chinese minister, was presented to the President he went to the State Department accompanied by Mr. Chow Tszchi, the first secretary, Mr. Chang Chuan, the second secretary, Mr. Sun Sze-yee, third secretary, and Mr. Li Kwoh-Cheng, one of the attachés, all of them attired in very dazzling Oriental costumes, and under the guidance of Secretary Hay they drove to the White House, where the President and his secretary, Mr. Loeb, were waiting for them.

The Ceremony

The East and the West met in typical fashion in the White House. The President and Sir Chentung shook hands. The President, the Secretary of State, and Mr. Loeb were attired in conventional black frock-coats and were of course uncovered. The minister and the members of his suite were gorgeous in their gayly colored diplomatic uniforms, and wore as custom prescribes their circular head-dress. It was not a long ceremony. The minister read his speech, the President replied to it, a copy of which is furnished to the minister for transmission to his government; the secretaries were presented to the President, a brief informal conversation took place between the minister and the President, the President once more shook hands with Sir Chentung and the members of his suite, and the ceremony was at an end.

Cuba's Last Buccaneers

As late as the year 1825 the waters adjacent to Porto Rico were infested by a bloodthirsty band of pirates, led by a Spaniard named Confrecinas. It was the proud boast of the buccaneer chief that he neither gave nor asked quarter. In March of the year mentioned Captain John Drake Sloat, who twenty-one years later raised the American flag over California, was placed in command of the sloop-of-war *Grampus*, with orders to proceed to the West Indies and wipe the pirates off the ocean. The *Grampus* cruised

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for some weeks without catching sight of any pirate vessel. One morning, while the sloop was lying at anchor in the harbor of San Juan, a man who had swum ashore from a merchant vessel captured by Confrecinas, reported that the pirate brig was anchored in the Boca de Inferno (Mouth of Hell), an obscure harbor some miles up the coast, waiting to attack a heavily laden schooner which was to sail from San Juan that very day.

Confrecinas knew the *Grampus* well, so to make sure of his prey, Captain Sloat placed a heavily armed crew and cannon loaded with grape on board the schooner, and sallied forth. The pirates, unsuspecting any resistance, bore down on the disguised vessel, with the black flag and skull and crossbones at the brig's masthead. Not a move was made by Sloat and his crew until the vessels were almost alongside, when the marines arose from the deck and poured a deadly fire into the brig. Confrecinas rallied his men, and for some time kept up a running fight, showing great skill in manipulating his crippled vessel. He was finally forced to run his brig ashore. Forty of the crew, with the buccaneer chief, were captured by waiting soldiers. They were taken to San Juan, court-martialed the next day, and shot. Confrecinas was the last to die. When they attempted to bind his eyes he threw the men aside, ridiculed the priest, and exclaimed in a loud voice:

"I have slain hundreds with my own hands, and I know how to die. Fire!" He fell pierced by many bullets, the last and most bloodthirsty of the buccaneers of that region.

What makes an Explosion

HYDROGEN forms a part of nearly all organic substances. In the greater number of plants hydrogen is associated with carbon. The growing plant is provided with roots spread out in the moist earth, while the part which is aboveground is provided with leaves that come in contact with a great quantity of air. By some mysterious influence that we do not understand the heat and light energy derived from the sun operating in connection with plant life decomposes the water in the earth, and also the carbonic-acid gas which forms a small percentage of the atmosphere. The roots take up water, and it flows up through the trunk of the tree, while at the same time the carbonic-acid gas of the atmosphere is decomposed, the oxygen set free, and the carbon combined with the hydrogen of the water. It will therefore be seen that in both cases oxygen is set free, and the hydrogen of the water is combined with the carbon of the atmosphere, forming a true hydrocarbon, which in many cases constitutes the greater part of the weight of the plant.

The Nature of Guncotton

The fibrous material so formed is generally known as cellulose. Pure cotton, and paper pulp made from wood, are examples of pure cellulose. If cellulose is plunged into strong nitric acid the hydrogen is displaced by what are known as "nitrogen groups"—that is, oxygen in chemical combination with nitrogen enters the substance, decomposing it, and driving out the hydrogen and supplanting it. The action of the nitric acid upon the cellulose produces water, which reduces the strength of the acid, and to avoid this a considerable quantity of very strong sulphuric acid is mixed with the nitric acid. This absorbs the water as fast as it is formed, keeping the nitric acid, as one might say, in a dry state. When cotton has been nitrated in this way, and then very carefully washed for many hours to deprive it of every trace of its acid, and dried, it becomes guncotton, chemically known as tri-nitrocellulose. If, however, the acids are weak, then collodion cotton is produced, which is known to chemistry as di-nitrocellulose. It is

only tri-nitrocellulose, however, that is employed in the manufacture of high explosives.

But cellulose is by no means the only material that can be nitrated. There are, in fact, hundreds of materials which may be thus converted into explosives, and all are nitrated in practically the same manner—namely, by being dropped into strong nitric acid. When glycerine, which is the sugar of fat, is nitrated, it is known as nitro-glycerine, one of the strongest and best known of explosives. Nitroglycerine and guncotton form the basis of a great number of smokeless powders.

A Freakish Force

When carbonic acid (phenol) is nitrated, it is called tri-nitrophenol, or picric acid. But picric acid was made more than one hundred years ago from indigo. It crystallizes in brilliant yellow scales, and it dyes all animal tissue an intensely brilliant yellow. It was used many years in the arts as a dyeing agent before its true character as an explosive was known. Picric acid is, indeed, a very peculiar substance. Although one of the most violent explosives known, it is one of the safest. If thrown into a white-hot furnace it burns away like pitch. If set on fire in the open air it burns with a yellow smoky flame. It cannot be exploded in the open air, but if confined in a strong receptacle, and ignited by a strong fulminating charge, it detonates with terrific violence, reducing the receptacle into fine fragments.

Making Iron into Lampblack

If exploded in a cast-iron shell the iron becomes atomized to such an extent that it has the appearance of lampblack. This material is used in its pure state in England for charging large shells under the name of lyddite. In France it is known as melinite and is employed for the same purpose, but the French mix about four per cent. of thick viscid petroleum oil with their picric acid, and then compress it into the shells. In this condition it is very insensitive to shock, and may be shot through thick armor plates without exploding. Picric acid may be mixed with a great variety of other materials, and is the basis of a great number of the "ites" that are employed for various purposes.

Phenol, the basis of picric acid, is manufactured from coal-tar, but it is by no means the only explosive which is made from coal-tar products. Tri-nitrotoluene and tri-nitro-cresol may be given as examples. They have the same explosive properties as picric acid, and are employed to some extent in place of picric acid in the manufacture of various explosives.

Manufacturing Explosives

Professor Mowbray of North Adams, Massachusetts, made a very violent explosive of tri-nitrotoluene and nitroglycerine, which was said to be extremely safe to handle. Then we have di-nitrobenzol, nitrobenzol (which has the smell of bitter-almonds, and is used for perfuming soaps), tri-nitronaphthalene, and many other similar substances, all of which may be employed in the manufacture of explosives. When two or more nitro explosives are mixed together their sensitiveness to go off by shock is considerably diminished. This is particularly the case with nitroglycerine and tri-nitrotoluene. But their sensitiveness to go off by shock may be diminished to any extent by the addition of a minute quantity of thick mineral oil, of which vaseline may be considered as an example.

A mixture consisting of 88 parts of picric acid, 8 parts of di-nitrobenzol, and 4 parts of vaseline, makes a very powerful and safe explosive, which melts at a very low temperature, and is sufficiently insensitive to be shot through thick armor plates without exploding.

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